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## ***Chapter 16***



# ***Toxics Release Inventory Data for Miscellaneous Manufacturing (SIC Code 39)***

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## **A Look at the Miscellaneous Manufacturing Industries (SIC Code 39)**

The miscellaneous manufacturing sector produces goods not classified in other manufacturing sectors. The miscellaneous manufacturing sector includes several industry groups—jewelry and silverware, musical instruments, toys and sporting goods, pens and artists' materials, and costume jewelry and fasteners. However, the largest group within this sector comprises industries not classified in those groups: miscellaneous manufactures. Products of this "miscellaneous" group (designated SIC code 399 at the three-digit level) are brooms and brushes, non-printed signs (electrical, mechanical, or other), burial caskets, hard surface floor coverings (such as linoleum), and a range of goods from hair dryers to umbrellas. Box 16-1 lists Standard Industrial Classification (SIC) codes and their designations for this sector. In TRI, SIC codes are given as reported by the facilities; these may differ from information in economic and other data collections.

The miscellaneous manufacturing sector shipped products valued at \$48.60 billion in 1996, up from \$46.67 billion in 1995 (both in current dollars). Employment in this sector was just under 400,000 in both years. Miscellaneous manufactures (SIC code 399) contributed \$19.58 billion of the sector's 1996 value of shipments with employment of 179,000. Toys and sporting goods accounted for \$14.75 billion and employed 103,000.

At the four-digit SIC code level, the miscellaneous manufacturing industries (SIC code 3999) were associated with the sector's largest amounts of releases and waste management of TRI chemicals. This industry shipped products valued at \$7.79 billion in 1996, employing 73,000.

The diversity of products in this sector attests to a diversity of manufacturing processes. The sector's products include articles made of wood, metal, plastics, and other materials. Production of such articles involves processes used in wood finishing, metal fabrication, plastics products manufacture, and other relevant operations.



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**Box 16-1. SIC Code 39, Miscellaneous Manufacturing: Codes and Classifications**

SIC Code	Industry Description
<b>391 Jewelry, Silverware, and Plated Ware</b>	
3911 Jewelry, Precious Metal	Manufacture of jewelry and other articles worn on or carried about the person, made of precious metals (including base metals clad or rolled with precious metals), with or without stones. Includes cigarette cases and lighters, vanity cases and compacts, trimmings for umbrellas and canes, and jewel settings and mountings.
3914 Silverware, Plated Ware, and Stainless Steel Ware	Manufacture of flatware (including knives, forks, and spoons), hollowware, ecclesiastical ware, trophies, trays, and related products made of sterling silver, plated metal (with silver, gold, or other metal), nickel silver, pewter, or stainless steel.
3915 Jewelers' Findings Materials and Lapidary Work	Manufacture of unassembled jewelry parts and stock shop products, such as sheet, wire, and tubing. Processing stones (cutting, tumbling, faceting, etc.) from natural or manmade precious or semiprecious gem raw materials. Recutting, repolishing, and setting gem stones. Cutting, drilling, and preparing jewels for instruments, dies, watches, chronometers, and other industrial uses. Drilling, sawing, and peeling real or cultured pearls.
<b>393 Musical Instruments</b>	
3931 Musical Instruments	Manufacture of pianos (with or without player attachments), organs, other musical instruments, and their parts and accessories.
<b>394 Dolls, Toys, Games and Sporting and Athletic Goods</b>	
3941 Dolls and Stuffed Toys	Manufacture of dolls, doll parts, and doll clothing, except doll wigs. Manufacture of stuffed toys.
3944 Games, Toys, and Children's Vehicles, Except Dolls and Bicycles	Manufacture of games and game sets for adults and children, and mechanical and non-mechanical toys. Includes toy furniture, doll carriages, construction sets, mechanical trains, toy guns and rifles, baby carriages and strollers, and children's tricycles, wagons, sleds, and similar outdoor goods except bicycles.
3949 Sporting and Athletic Goods, nec*	Manufacture of sporting and athletic goods, such as fishing tackle; golf and tennis goods; baseball, football, basketball, and boxing equipment; roller and ice skates; gymnasium and playground equipment; billiard and pool tables; and bowling alleys and equipment.
<b>395 Pens, Pencils, and Other Artists' Materials</b>	
3951 Pens, Mechanical Pencils, and Parts	Manufacture of pens (including ballpoint pens), refill cartridges, mechanical pencils, fine and broad tipped markers, and parts.
3952 Lead Pencils, Crayons, and Artists' Materials	Manufacture of lead pencils, pencil leads, crayons, and materials and equipment for artwork, such as airbrushes, drawing tables, palettes, sketch boxes, artists' colors, drawing inks, and drafting materials.
3953 Marking Devices	Manufacture of rubber and metal hand-stamps, dies, and seals; steel letters and figures; and stencils for use in painting or marking.
3955 Carbon Paper and Inked Ribbons	Manufacture of carbon paper, stencil paper, and inked or carbon ribbons for business machines.
<b>396 Costume Jewelry and Costume Novelties, Except Precious Metal</b>	
3961 Costume Jewelry and Costume Novelties, Except Precious Metal	Manufacture of costume jewelry, costume novelties, and ornaments made of all materials except precious metal, precious or semiprecious stones, or rolled goldplate and gold-filled materials.
3965 Fasteners, Buttons, Needles, and Pins	Manufacture of notions, such as slide and snap fasteners and zippers, needles, pins, hooks and eyes, buckles, and buttons.
<b>399 Miscellaneous Manufacturing Industries</b>	
3991 Brooms and Brushes	Manufacture of household, industrial, and street sweeping brooms. Manufacture of brushes, such as paintbrushes, toothbrushes, and household and industrial brushes.
3993 Signs and Advertising Specialties	Manufacture of electrical, mechanical, cutout, or plate signs and advertising displays, including neon signs, and advertising specialties.
3995 Burial Caskets	Manufacture of burial caskets and cases, including shipping cases, of wood or other material except concrete.
3996 Linoleum, Asphalted-Felt-Base, and Other Hard Surface Floor Coverings, nec*	Manufacture of linoleum, asphalted-felt-base, and other hard surface floor coverings.
3999 Manufacturing Industries, nec*	Manufacture of miscellaneous fabricated products, including beauty shop and barber shop equipment; hair work; tobacco pipes and cigarette holders; coin-operated amusement machines; matches; candles; lamp shades; feathers, artificial trees and flowers (except glass); dressed and dyed furs; umbrellas and canes; and other articles.

\*nec: not elsewhere classified; these are generally referred to as "miscellaneous" products in their categories.



## 1996 TRI Data for Miscellaneous Manufacturing

Table 16-1 summarizes TRI reporting by the miscellaneous manufacturing sector for 1996. The miscellaneous manufacturing sector submitted 766 forms in 1996. Of these, 56 were Form A certification statements, certifying that a facility's total annual reportable amount of a TRI chemical was less than 500 pounds for the year and that the facility did not manufacture, process, or otherwise use more than 1 million pounds. (The Form A certification statement is explained in Chapter 1.)

The miscellaneous manufacturing industries (SIC code 3999) submitted 245 forms in 1996, 32.0% of the sector's total. Ranking second, the miscellaneous sporting and athletic goods industry (SIC code 3949) submitted 123 forms (16.1%). The burial caskets industry (SIC code 3995) submitted 90 forms (11.7%).

The miscellaneous manufacturing industries (SIC code 3999) reported the sector's largest amounts of on-site releases (3.3 million pounds) and total on- and off-site releases (3.4 million pounds). These amounts were approximately 34% of the sector's total on-site releases of 9.4 million pounds and total on- and off-site releases of 10.3 million pounds. Industries in SIC code 3999 also reported the largest amounts of on-site waste management (6.6 million pounds) and total production-related waste

(13.1 million pounds). This represented 26.6% of the sector's total other on-site waste management of 24.7 million pounds and 22.7% of the sector's total production-related waste of 57.6 million pounds.

For both on-site releases and total on- and off-site releases, the burial caskets industry (SIC code 3995) ranked second and the miscellaneous sporting and athletic goods industry (SIC code 3949) ranked third. The burial casket industry reported 2.4 million pounds of total on- and off-site releases (23.0% of the sector's total), and the miscellaneous sporting and athletic goods industry reported 1.9 million pounds of total on- and off-site releases (18.8%). More than 95% of each industry's total releases was reported as on-site releases.

The miscellaneous hard surface floor coverings industry (SIC code 3996) ranked first in this sector for off-site releases, reporting 431,000 pounds, 51.3% of the sector's total of 839,000 pounds. Miscellaneous manufacturing industries (SIC code 3999) ranked second, with 129,000 pounds (15.4%), followed by miscellaneous sporting and athletic goods (SIC code 3949) 91,000 pounds (10.9%).

For other on-site waste management, the carbon paper and inked ribbons industry (SIC code 3955) ranked second (after the miscellaneous manufacturing industries in SIC code 3999). This industry reported other on-site waste management of 5.3 million pounds (21.4% of the total). The third-largest amount of other on-site waste

### Sources

- Executive Office of the President, Office of Management and Budget, *Standard Industrial Classification Manual, 1987*: Standard Industrial Classification (SIC) codes and industry descriptions.
- U.S. *Industry & Trade Outlook '98*, DRI/McGraw Hill, Standard & Poor's, and U.S. Department of Commerce, International Trade Administration, 1998: economic analyses, also provides some information on environment and industrial processes for selected industries.
- U.S. Census Bureau, *1996 Annual Survey of Manufactures: Statistics for Industry Groups and Industries*, M96(AS)-1, February 1998 <<http://www.census.gov/prod/www/titles.html#mm>>: value of shipments and employment. Supplemental data from U.S. Census Bureau <<http://www.census.gov>> for some industries.



## Chapter 16 — TRI Data for Miscellaneous Manufacturing

**Table 16-1. Summary of TRI Information by 4-digit SIC Code, 1996: Miscellaneous Manufacturing, SIC Code 39**

Total On- and Off-site Releases Rank	Total Production-related Waste Rank	SIC Code	Industry	Total Facilities Number	Total Forms Number	Form As Number	Total On-site Releases Pounds	Total Off-site Releases Pounds	Total On- and Off-site Releases Pounds
13	13	3911	Jewelry, Precious Metal	14	25	1	16,374	38,760	55,134
9	7	3914	Silverware & Plated Ware	11	33	5	79,788	43,960	123,748
19	14	3915	Jewelers' Materials & Lapidary Work	8	14	2	2,880	500	3,380
6	10	3931	Musical Instruments	17	30	0	318,324	51,635	369,959
8	12	3944	Games, Toys, & Children's Vehicles	9	21	2	222,605	90	222,695
3	5	3949	Sporting & Athletic Goods, nec*	62	123	7	1,840,975	91,252	1,932,227
11	11	3951	Pens & Mechanical Pencils	10	23	0	103,753	5,993	109,746
16	18	3952	Lead Pencils & Art Goods	2	8	3	21,480	0	21,480
14	15	3953	Marking Devices	4	11	0	50,996	0	50,996
5	3	3955	Carbon Paper & Inked Ribbons	6	14	0	543,719	0	543,719
18	19	3961	Costume Jewelry	8	9	2	12,109	0	12,109
10	2	3965	Fasteners, Buttons, Needles, & Pins	10	23	0	106,490	13,804	120,294
17	16	3991	Brooms & Brushes	3	6	1	17,149	0	17,149
7	8	3993	Signs & Advertising Specialities	16	29	1	239,980	0	239,980
2	6	3995	Burial Caskets	21	90	0	2,329,930	33,652	2,363,582
4	9	3996	Hard Surface Floor Coverings, nec*	12	32	0	128,395	430,627	559,022
1	1	3999	Manufacturing Industries, nec*	133	245	27	3,293,617	128,985	3,422,602
12	17		Multiple within SIC Code 39	9	15	4	66,640	0	66,640
15	4		Invalid SIC Code within SIC Code 39	7	15	1	35,571	25	35,596
			Total for SIC Code 39	362	766	56	9,430,775	839,283	10,270,058

**Note:** **On-site Releases** from Section 5 of Form R. **On-site Waste Management** from Section 8 of Form R. **Off-site Releases** from Section 6 (transfers off-site to disposal) of Form R. **Total Transfers Off-site for Further Waste Management** from Section 6 (excluding transfers off-site to disposal) of Form R. **Total Production-related Waste** sums Section 8 (Current Year, Column B) of Form R, except: **Non-production-related Waste** (remedial/catastrophic incidents). Facilities/forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 30 pounds of total releases, 3,209,773 pounds of other on-site waste management, 207,776 pounds of transfers off-site for further waste management and 3,417,119 pounds of total production-related waste. Another facility incorrectly reported under an invalid SIC code within SIC code 39 for 1996. The correct SIC code is 3714. The incorrectly reported amounts were as follows: 2,738 pounds of total releases, 2,867,591 pounds of other on-site waste management, 2,506,231 pounds of transfers off-site for further waste management and 5,376,558 pounds of total production-related waste. The total production-related waste rank for invalid SIC code within SIC code 39 changes from 4 to 10.

\*nec: not elsewhere classified.

management consisted of 2.9 million pounds (11.7%) reported with invalid SIC codes in SIC code 39, a reporting error. One facility submitting such forms should have reported in SIC code 3714 (motor vehicle parts and accessories); this facility accounted for nearly all of the 2.9 million pounds. Taking into account this error, the fasteners, buttons, needles, and pins industry (SIC code 3965) would rank third with 2.8 million pounds of other on-site waste management.

The fasteners, buttons, needles, and pins industry (SIC code 3965) ranked first in this sector for transfers off-site for further waste management, reporting 5.0 million pounds (23.3%). The silverware and plated ware industry (SIC code 3914) ranked second, with 3.4 million pounds

(15.7%). The miscellaneous manufacturing industries (SIC code 3999) reported the third-largest amount, with 3.0 million pounds (14.2%).

For total production-related waste, the fasteners, buttons, needles, and pins industry (SIC code 3965) ranked second (after miscellaneous manufacturing in SIC code 3999), with 7.9 million pounds (13.7%), and the carbon paper and inked ribbons industry (SIC code 3955) ranked third, with 6.6 million pounds (11.5%).

### Multiple SIC Codes in SIC Code 39

A few facilities in the miscellaneous manufacturing sector engage in distinct, but related, manufacturing activities that are classified in different SIC codes



**Table 16-1. Summary of TRI Information by 4-digit SIC Code, 1996: Miscellaneous Manufacturing, SIC Code 39, Continued**

SIC Code	Industry	Total Other On-site Waste Management Pounds	Total Transfers Off-site for Further Waste Management Pounds	Total Production-related Waste Pounds	Non-Production-related Waste Pounds
3911	Jewelry, Precious Metal	133,340	35,190	236,610	500
3914	Silverware & Plated Ware	331,351	3,379,611	3,832,259	5,568
3915	Jewelers' Materials & Lapidary Work	23,352	192,652	219,593	0
3931	Musical Instruments	1,004,806	239,115	1,621,426	0
3944	Games, Toys, & Children's Vehicles	125,550	84,166	437,119	0
3949	Sporting & Athletic Goods, nec*	1,930,594	989,904	5,433,080	3,200
3951	Pens & Mechanical Pencils	42,130	372,128	504,361	0
3952	Lead Pencils & Art Goods	0	129,460	151,031	0
3953	Marking Devices	1,422	141,915	191,501	0
3955	Carbon Paper & Inked Ribbons	5,287,354	763,650	6,641,762	0
3961	Costume Jewelry	9,150	18,009	42,011	0
3965	Fasteners, Buttons, Needles, & Pins	2,812,643	5,002,326	7,913,738	0
3991	Brooms & Brushes	140,400	1,609	166,097	0
3993	Signs & Advertising Specialties	2,147,297	1,031,764	3,417,188	11,302
3995	Burial Caskets	12,486	2,396,683	4,824,516	530
3996	Hard Surface Floor Coverings, nec*	1,192,632	663,229	2,586,151	0
3999	Manufacturing Industries, nec*	6,570,885	3,047,148	13,106,360	2,327
	Multiple within SIC Code 39	12,919	74,523	159,044	0
	Invalid SIC Code within SIC Code 39	2,887,736	2,903,285	6,156,654	1,110
	Total for SIC Code 39	24,666,047	21,466,367	57,640,501	24,537

**Note:** **On-site Releases** from Section 5 of Form R. **On-site Waste Management** from Section 8 of Form R. **Off-site Releases** from Section 6 (transfers off-site to disposal) of Form R. **Total Transfers Off-site for Further Waste Management** from Section 6 (excluding transfers off-site to disposal) of Form R. **Total Production-related Waste** sums Section 8 (Current Year, Column B) of Form R, except: **Non-production-related Waste** (remedial/catastrophic incidents). Facilities/forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 30 pounds of total releases, 3,209,773 pounds of other on-site waste management, 207,776 pounds of transfers off-site for further waste management and 3,417,119 pounds of total production-related waste. Another facility incorrectly reported under an invalid SIC code within SIC code 39 for 1996. The correct SIC code is 3714. The incorrectly reported amounts were as follows: 2,738 pounds of total releases, 2,867,591 pounds of other on-site waste management, 2,506,231 pounds of transfers off-site for further waste management and 5,376,558 pounds of total production-related waste. The total production-related waste rank for invalid SIC code within SIC code 39 changes from 4 to 10.

\***nec:** not elsewhere classified.

within SIC code 39. For example, a facility might manufacture both precious-metal jewelry (SIC code 3911) and costume jewelry (SIC code 3961). Such facilities may report multiple SIC codes on their TRI forms. (Box 1-5 in Chapter 1 further explains reporting of multiple SIC codes and its affect on the analyses presented in the TRI data release.)

Table 16-2 further examines reporting on these multiple-codes forms in SIC code 39. Of the 15 forms that reported multiple SIC codes within miscellaneous manufacturing, seven forms reported the combination of precious-metal jewelry (SIC code 3911) and jewelers' materials and lapidary work (SIC code 3915). The multiple-codes forms in SIC code 39 reported total on- and off-site releases

of 67,000 pounds and total production-related waste of 159,000 pounds in 1996.

## On- and Off-site Releases

The miscellaneous manufacturing sector reported 9.4 million pounds of air emissions in 1996, which was 91.6% of the sector's total releases. Off-site releases (transfers to disposal) reported by this sector totaled 839,000 pounds, or 8.2% of the sector's total. Other types of releases amounted to less than 0.5% each of the sector's total on- and off-site releases. The sector reported no underground injection. These data appear in Table 16-3. Figure 16-1 illustrates the percentage distribution of releases reported by this sector.



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**Table 16-2. Multiple SIC Codes, 1996: Miscellaneous Manufacturing, SIC Code 39**

SIC Codes	Total Forms Number	Form As Number	Total On-site Releases Pounds	Total Off-site Releases Pounds	Total On- and Off-site Releases Pounds	Total Other On-site Waste Management Pounds	Total Transfers Off-site for Further Waste Management Pounds	Total Production-related Waste Pounds	Non-Production-related Waste Pounds
3911 3915	7	2	3,425	0	3,425	8,866	27,021	39,327	0
3911 3961	3	1	5	0	5	0	23,353	28,208	0
3944 3949	2	0	61,474	0	61,474	0	24,149	85,690	0
3944 3998	2	1	1,670	0	1,670	0	0	1,700	0
3961 3965	1	0	66	0	66	4,053	0	4,119	0
Total for SIC Code 39	15	4	66,640	0	66,640	12,919	74,523	159,044	0

**Note:** On-site Releases from Section 5 of Form R. On-site Waste Management from Section 8 of Form R. Off-site Releases are transfers off-site to disposal from Section 6 of Form R. Total Transfers Off-site for Further Waste Management from Section 6 of Form R. Total Production-related Waste sums Section 8 of Form R, except: Non-production-related Waste (remedial/catastrophic incidents).

**Table 16-3. TRI On-site and Off-site Releases, 1996: Miscellaneous Manufacturing, SIC Code 39 (in Rank Order)**

SIC Code	Industry	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection		On-site Land Releases		Total On-site Releases Pounds	Off-site Releases Transfers Off-site to Disposal Pounds	Total On- and Off-site Releases Pounds
				Class I Wells Pounds	Class II-V Wells Pounds	RCRA Subtitle C Landfills Pounds	Other On-site Land Releases Pounds			
3999	Manufacturing Industries, nec*	3,282,638	291	0	0	10,688	0	3,293,617	128,985	3,422,602
3995	Burial Caskets	2,329,150	515	0	0	0	265	2,329,930	33,652	2,363,582
3949	Sporting & Athletic Goods, nec*	1,831,638	475	0	0	1,269	7,593	1,840,975	91,252	1,932,227
3996	Hard Surface Floor Coverings, nec*	128,035	29	0	0	0	331	128,395	430,627	559,022
3955	Carbon Paper & Inked Ribbons	543,719	0	0	0	0	0	543,719	0	543,719
3931	Musical Instruments	318,324	0	0	0	0	0	318,324	51,635	369,959
3993	Signs & Advertising Specialities	239,980	0	0	0	0	0	239,980	0	239,980
3944	Games, Toys, & Children's Vehicles	222,605	0	0	0	0	0	222,605	90	222,695
3914	Silverware & Plated Ware	78,990	798	0	0	0	0	79,788	43,960	123,748
3965	Fasteners, Buttons, Needles, & Pins	106,279	211	0	0	0	0	106,490	13,804	120,294
3951	Pens & Mechanical Pencils	103,753	0	0	0	0	0	103,753	5,993	109,746
	Multiple within SIC Code 39	66,640	0	0	0	0	0	66,640	0	66,640
3911	Jewelry, Precious Metal	16,374	0	0	0	0	0	16,374	38,760	55,134
3953	Marking Devices	50,996	0	0	0	0	0	50,996	0	50,996
	Invalid SIC Code within SIC Code 39	35,526	45	0	0	0	0	35,571	25	35,596
3952	Lead Pencils & Art Goods	21,480	0	0	0	0	0	21,480	0	21,480
3991	Brooms & Brushes	17,149	0	0	0	0	0	17,149	0	17,149
3961	Costume Jewelry	12,109	0	0	0	0	0	12,109	0	12,109
3915	Jewelers' Materials & Lapidary Work	2,880	0	0	0	0	0	2,880	500	3,380
Total for SIC Code 39		9,408,265	2,364	0	0	11,957	8,189	9,430,775	839,283	10,270,058

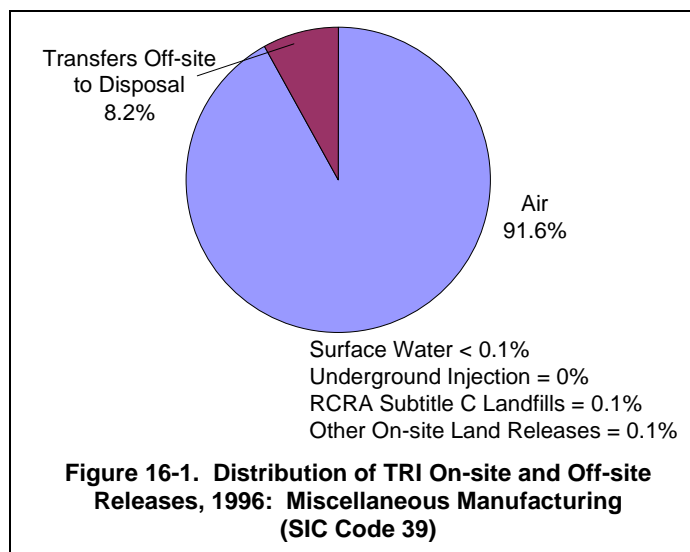
**Note:** On-site Releases from Section 5 of Form R. Off-site Releases from Section 6 (off-site transfers to disposal) of Form R. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category.

\*nec: not elsewhere classified.

Miscellaneous manufacturing industries (SIC code 3999) reported 3.3 million pounds (34.9%) of the sector's air emissions. Ranking second, the burial caskets industry (SIC code 3995) reported 2.3 million pounds (24.8%) of air emissions. The miscellaneous sporting and athletic goods industry (SIC code 3949) ranked third, reporting 1.8 million pounds (19.5%). In all three industries, toluene was reported in the largest amounts (see discussion of "1996 TRI Data by Chemical," later in this chapter). One facility in miscellaneous

manufacturing reported 545,000 pounds of air emissions of toluene. Another facility that manufactures burial caskets reported emissions of 214,000 pounds of toluene. A sporting goods facility reported 402,000 pounds of toluene.

The miscellaneous hard surface floor coverings industry (SIC code 3996) reported the sector's largest amount of off-site releases (transfers to disposal). This industry reported 431,000 pounds of transfers to disposal. One facility in SIC code 3996



**Note:** On-site Releases from Section 5 of Form R. Off-site Releases from Section 6 (transfers off-site to disposal) of Form R.

reported 329,000 pounds of di-(2-ethylhexyl) phthalate, the chemical accounting for most of the industry's off-site releases. (As explained in "Facilities with Large Increases and Decreases in Releases, 1988-1996," later in this chapter, this facility has reported large decreases of this chemical.)

Figure 16-2 shows the distribution of on- and off-site releases for the industries (four-digit SIC code) with the sector's largest releases.

## Other On-site Waste Management

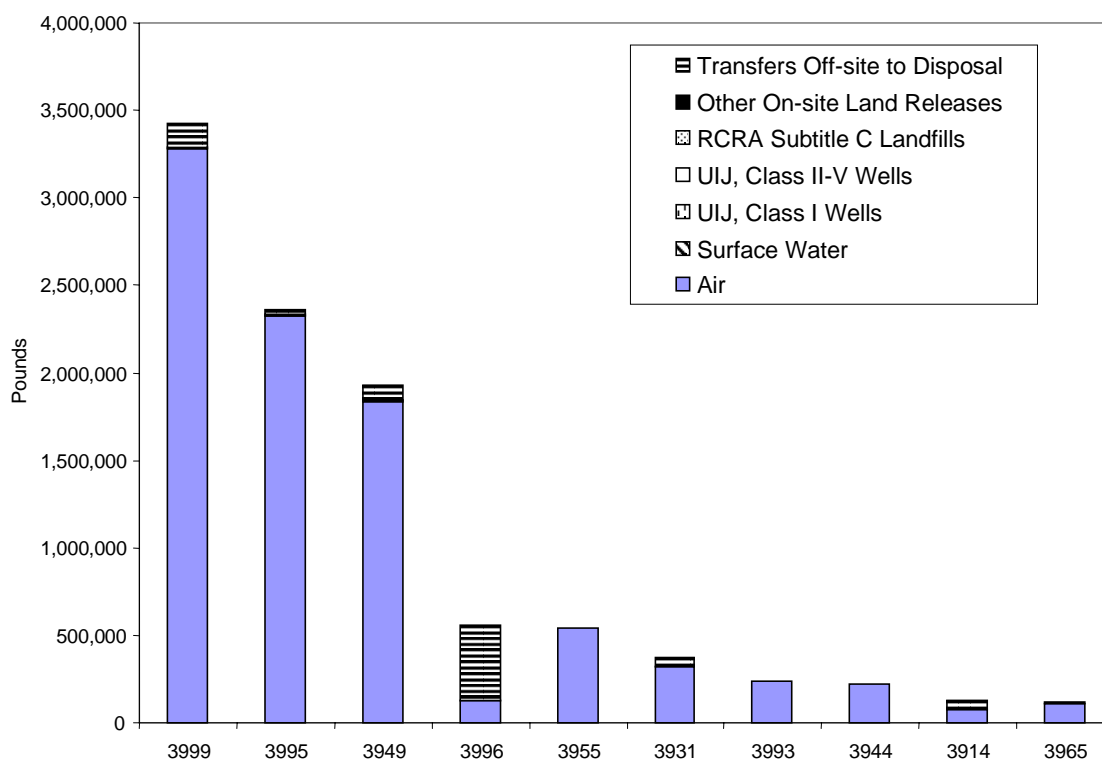
Two-thirds (67.0%) of the miscellaneous manufacturing sector's reported other on-site waste management in 1996 consisted of on-site recycling, which totaled 16.5 million pounds, as shown in Table 16-4. The sector reported 3.4 million pounds of on-site energy recovery and 4.8 million pounds of on-site treatment, amounting to 13.6% and 19.3%, respectively, of total other on-site waste management. Figure 16-3 illustrates the percentage distribution of the sector's other on-site waste management by type.

The miscellaneous manufacturing industries (SIC code 3999) reported 5.2 million pounds of on-site

recycling, 31.5% of the sector's total. However, this includes an error by one facility that reported on-site recycling of 3.0 million pounds of zinc compounds. This facility reported in SIC code 3999 (miscellaneous manufacturing industries), but should have reported in SIC code 3499 (miscellaneous fabricated metal products). The sector's next-largest amount of on-site recycling appeared on the forms with invalid SIC codes in SIC code 39, also a reporting error. One facility submitting such forms reported on-site recycling of 1.6 million pounds of copper and 1.1 million pounds of lead; these forms should have been reported in SIC code 3714. Taking into account these reporting errors, the fasteners, buttons, needles and pins industry (SIC code 3965) would rank first in this sector for on-site recycling, reporting 2.8 million pounds. One facility in SIC code 3965, a zipper manufacturer, reported on-site recycling of 2.8 million pounds of copper. The signs and advertising specialties industry (SIC code 3993) would rank second with 2.1 million pounds, and the miscellaneous sporting and athletic goods industry (SIC code 3949) would rank third with 1.2 million pounds.

The carbon paper and inked ribbons industry (SIC code 3955) reported almost all (98.2%) of the industry's on-site energy recovery, with 3.3 million pounds. This industry reported combustion for energy recovery of 2.1 million pounds of methyl ethyl ketone and 1.1 million pounds of toluene. One facility accounted for the majority of this reporting of energy recovery, with 2.0 million pounds of methyl ethyl ketone and 830,000 pounds of toluene. Only three other industries in this sector reported on-site energy recovery in 1996, as shown in Table 16-4.

The carbon paper and inked ribbons industry (SIC code 3955) also ranked first in this sector for reporting of on-site treatment, with 1.7 million pounds (36.2%). The miscellaneous manufacturing industries (SIC code 3999) ranked second, with 1.4 million pounds (28.7%). Miscellaneous sporting



**Figure 16-2. TRI On-site and Off-site Releases, SIC Codes with Largest Releases, 1996: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** On-site Releases from Section 5 of Form R. Off-site Releases from Section 6 (transfers off-site to disposal). UIJ = underground injection.

and athletic goods (SIC code 3949) reported the third-largest amount, 669,000 pounds (14.0%).

Figure 16-4 illustrates the distribution of on-site waste management reporting for the top industries in this sector.

## Transfers Off-site for Further Waste Management

The miscellaneous manufacturing sector reported 17.8 million pounds of transfers to recycling in 1996, which amounted to 83.1% of the sector's transfers off-site for further waste management. Transfers to energy recovery totaled 2.5 million pounds (11.6%). Transfers to treatment and to POTWs each accounted for 3% or less of the sector's total transfers off-site for further waste management, as shown in Table 16-5. Figure 16-5 illustrates the percentage distribution of the

miscellaneous manufacturing sector's reported transfers off-site for further waste management.

The fasteners, buttons, needles, and pins industry (SIC code 3965) reported transferring 4.9 million pounds to recycling, including 3.1 million pounds of copper and 1.7 million pounds of ethylene glycol. One facility reported transfers to recycling of 2.5 million pounds of copper. The facility mentioned above that reported substantial on-site recycling of copper reported all of the industry's transfers to recycling of ethylene glycol (1.7 million pounds). The two facilities are owned by the same parent company. The silverware and plated ware industry (SIC code 3914) ranked second for transfers to recycling, with 3.3 million pounds (18.8%), including 1.7 million pounds of chromium. One facility in this industry reported transferring 1.3 million pounds of chromium to recycling. Forms reporting invalid SIC codes in




**Table 16-4. TRI Other On-site Waste Management, 1996: Miscellaneous Manufacturing, SIC Code 39 (in Rank Order)**

SIC Code	Industry	Recycled On-site Pounds	Energy Recovery On-site Pounds	Treated On-site Pounds	Total Other On-site Waste Management Pounds
3999	Manufacturing Industries, nec*	5,200,553	0	1,370,332	6,570,885
3955	Carbon Paper & Inked Ribbons	257,181	3,303,299	1,726,874	5,287,354
	Invalid SIC Code within SIC Code 39	2,869,736	0	18,000	2,887,736
3965	Fasteners, Buttons, Needles, & Pins	2,803,777	0	8,866	2,812,643
3993	Signs & Advertising Specialities	2,098,136	0	49,161	2,147,297
3949	Sporting & Athletic Goods, nec*	1,230,154	31,230	669,210	1,930,594
3996	Hard Surface Floor Coverings, nec*	837,196	0	355,436	1,192,632
3931	Musical Instruments	946,313	0	58,493	1,004,806
3914	Silverware & Plated Ware	201,557	0	129,794	331,351
3991	Brooms & Brushes	0	0	140,400	140,400
3911	Jewelry, Precious Metal	19,840	0	113,500	133,340
3944	Games, Toys, & Children's Vehicles	22,250	0	103,300	125,550
3951	Pens & Mechanical Pencils	17,622	24,508	0	42,130
3915	Jewelers' Materials & Lapidary Work	0	3,300	20,052	23,352
	Multiple within SIC Code 39	5,884	0	7,035	12,919
3995	Burial Caskets	12,486	0	0	12,486
3961	Costume Jewelry	9,150	0	0	9,150
3953	Marking Devices	1,422	0	0	1,422
3952	Lead Pencils & Art Goods	0	0	0	0
	Total for SIC Code 39	16,533,257	3,362,337	4,770,453	24,666,047

**Note:** Other On-site Waste Management from Section 8 of Form R. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 3,209,200 pounds of recycling on-site, 573 pounds of treatment on-site and 3,209,773 pounds of other on-site waste management. The rank for SIC code 3999 changes from 1 to 2. Another facility incorrectly reported under an invalid SIC code within SIC code 39 for 1996. The correct SIC code is 3714. The incorrectly reported amount was 2,867,591 pounds of recycling on-site and total on-site waste management. The rank for invalid SIC code within SIC code 39 changes from 3 to 13.

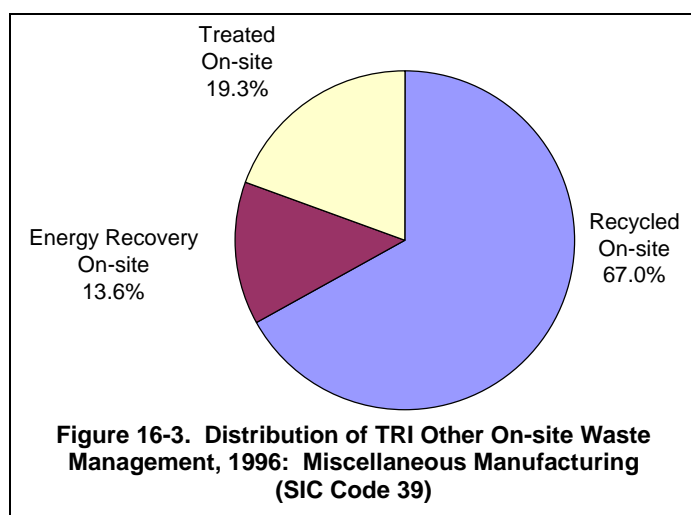
\*nec: not elsewhere classified.

SIC code 39, explained above, reported 2.9 million pounds of transfers to recycling, the sector's third largest amount. This included forms from one facility totaling 2.5 million pounds; these forms should have been submitted in SIC code 3714.

Taking this error into account, the burial caskets industry (SIC code 3995) ranked third with 2.1 million pounds.

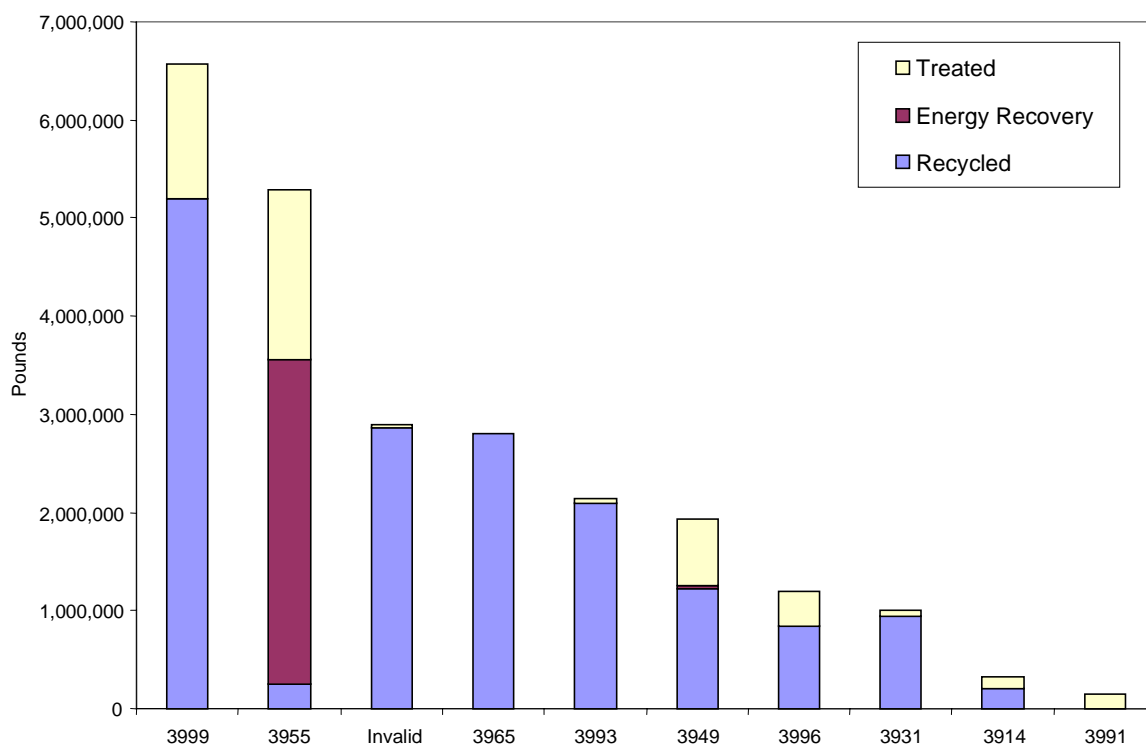
The miscellaneous manufacturing industries (SIC code 3999) reported half (50.8%) of the sector's transfers to energy recovery, with 1.3 million pounds. The chemical reported in the largest amount was toluene (594,000 pounds). The miscellaneous hard surface floor coverings industry (SIC code 3996) ranked second, with 438,000 pounds (17.7%), and the burial caskets industry (SIC code 3995) ranked third, with 257,000 pounds (10.3%).

The miscellaneous manufacturing industries (SIC code 3999) reported 166,000 pounds of transfers to treatment in 1996, which amounted to 32.2% of the sector's total in this category. The carbon paper and inked ribbons industry (SIC code 3955) ranked



**Figure 16-3. Distribution of TRI Other On-site Waste Management, 1996: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** Data from Section 8 of Form R.



**Figure 16-4. TRI Other On-site Waste Management, SIC Codes with Largest Totals, 1996: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** Other On-site Waste Management from Section 8 of Form R. Invalid SIC codes are codes beginning “39” that do not exist in the current Standard Industrial Classification code system. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 3,209,200 pounds of recycling on-site, 573 pounds of treatment on-site and 3,209,773 pounds of other on-site waste management. The rank for SIC code 3999 changes from 1 to 2. Another facility incorrectly reported under an invalid SIC code within SIC code 39 for 1996. The correct SIC code is 3714. The incorrectly reported amount was 2,867,591 pounds of recycling on-site and of total on-site waste management. The rank for invalid SIC code within SIC code 39 changes from 3 to 13.

second, reporting 123,000 pounds (23.9%). Miscellaneous sporting and athletic goods (SIC code 3949) ranked third, reporting 55,000 pounds (10.7%).

The sector’s largest transfers to POTWs were reported by the miscellaneous sporting and athletic goods industry (SIC code 3949), with 164,000 pounds (25.7%), followed by miscellaneous hard surface floor coverings (SIC code 3996) with 141,000 pounds (22.2%). Fasteners, buttons, needles, and pins (SIC code 3965) ranked third, with 101,000 pounds (15.8%).

Figure 16-6 illustrates the distribution of off-site transfers for further waste management for the top industries in this sector.

## 1996 TRI Data by State for Miscellaneous Manufacturing

The miscellaneous manufacturing sector submitted more than 50 forms in each of three states in 1996, as shown in Table 16-6. These states were Indiana (74 forms, or 9.7% of the sector’s total), Pennsylvania (68 forms, or 8.9%), and Ohio (53 forms, or 6.9%).

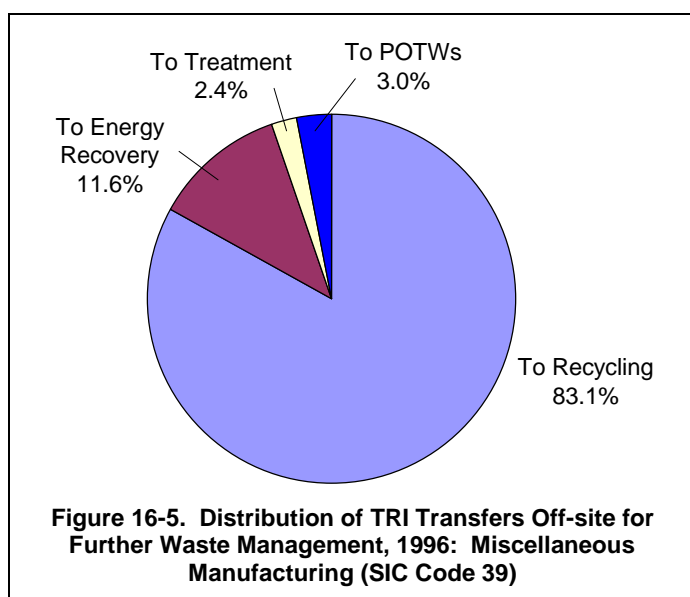


**Table 16-5. TRI Transfers Off-site for Further Waste Management, 1996: Miscellaneous Manufacturing, SIC Code 39 (in Rank Order)**

SIC Code	Industry	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Other Off-site Transfers Pounds	Total Off-site Transfers for Further Waste Management Pounds
3965	Fasteners, Buttons, Needles, & Pins	4,854,496	17,709	29,571	100,550	0	5,002,326
3914	Silverware & Plated Ware	3,349,597	0	29,757	257	0	3,379,611
3999	Manufacturing Industries, nec*	1,575,574	1,259,801	166,175	45,598	0	3,047,148
	Invalid SIC Code within SIC Code 39	2,884,775	0	15,727	2,783	0	2,903,285
3995	Burial Caskets	2,124,074	256,589	1,045	14,975	0	2,396,683
3993	Signs & Advertising Specialities	896,352	76,925	15,951	42,536	0	1,031,764
3949	Sporting & Athletic Goods, nec*	715,109	56,199	55,078	163,518	0	989,904
3955	Carbon Paper & Inked Ribbons	520,000	120,184	123,466	0	0	763,650
3996	Hard Surface Floor Coverings, nec*	80,033	437,871	4,027	141,298	0	663,229
3951	Pens & Mechanical Pencils	230,470	108,984	19,604	13,070	0	372,128
3931	Musical Instruments	174,318	30,006	34,281	510	0	239,115
3915	Jewelers' Materials & Lapidary Work	192,647	0	0	5	0	192,652
3953	Marking Devices	0	29,961	16,032	95,922	0	141,915
3952	Lead Pencils & Art Goods	129,460	0	0	0	0	129,460
3944	Games, Toys, & Children's Vehicles	23,366	60,800	0	0	0	84,166
	Multiple within SIC Code 39	34,886	24,149	1,390	14,098	0	74,523
3911	Jewelry, Precious Metal	33,284	0	1,881	25	0	35,190
3961	Costume Jewelry	16,819	233	707	250	0	18,009
3991	Brooms & Brushes	0	0	1,609	0	0	1,609
Total for SIC Code 39		17,835,260	2,479,411	516,301	635,395	0	21,466,367

**Note: Off-site Transfers for Further Waste Management** from Section 6 (excluding off-site transfers to disposal) of Form R. Other Off-site Transfers are transfers reported without a valid waste management code. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under an invalid SIC code within SIC code 39 for 1996. The correct SIC code is 3714. The incorrectly reported amounts were: 2,490,481 pounds of transfers to recycling, 15,727 pounds of transfers to treatment, 23 pounds of transfers to POTWs and 2,506,231 pounds of transfers off-site for further waste management. The rank for invalid SIC code within SIC code 39 changes from 4 to 10.

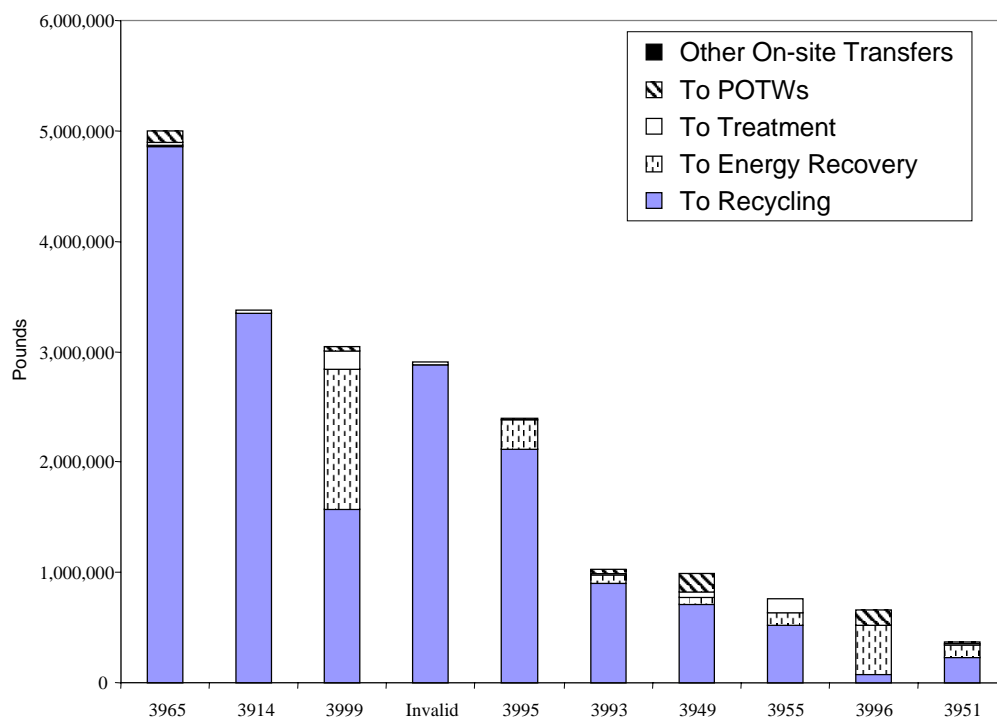
\*nec: not elsewhere classified.



**Note: Transfers Off-site for Further Waste Management** from Section 6 (excluding transfers off-site to disposal) of Form R.

Indiana reported the largest total on- and off-site releases in this sector in 1996, 1.65 million pounds, or 16.0% of the sector's total. Pennsylvania ranked second with 1.58 million pounds (15.4%), and Puerto Rico ranked third with 548,000 pounds (5.3%). In all three locations, the miscellaneous manufacturing sector reported the majority of its releases as on-site releases. On-site releases totaled 1.6 million pounds (16.5% of the sector's total) in Indiana, 1.2 million pounds (13.0%) in Pennsylvania, and 548,000 (5.8%) pounds in Puerto Rico.

Pennsylvania ranked first for off-site releases (transfers to disposal) reported by the miscellaneous manufacturing sector, with 348,000 pounds (41.5% of the sector's total). A Pennsylvania facility reported the sector's largest transfers to disposal, 329,000 pounds of



**Figure 16-6. TRI Transfers Off-site for Further Waste Management, SIC Codes with Largest Totals, 1996: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** Off-site Transfers for Further Waste Management from Section 6 (excluding off-site transfers to disposal) of Form R. Other Off-site Transfers are transfers reported without a valid waste management code. Invalid SIC codes are codes beginning "39" that do not exist in the current Standard Industrial Classification code system. One facility reported incorrectly under an invalid SIC code within SIC code 39 for 1996. The correct SIC code is 3714. The incorrectly reported amount was 2,506,231 pounds of transfers off-site for further waste management. The rank for invalid SIC code within SIC code 39 changes from 4 to 10.

di-(2-ethylhexyl) phthalate. Kentucky and Indiana followed Pennsylvania with 94,000 pounds (11.2%) and 89,000 pounds (10.6%), respectively.

The miscellaneous manufacturing sector reported 4.6 million pounds of other on-site waste management in New York, the state with the largest amount in this category. Ohio ranked second, with 3.3 million pounds, but this included the forms submitted erroneously with invalid SIC codes in SIC code 39, with on-site waste management of 2.9 million pounds. Colorado reported the third-largest amount, 3.2 million pounds, although this also included the facility that erroneously reported on-site recycling of 3.0 million pounds of zinc compounds in SIC code 3999 instead of in SIC code 3499. Taking into account the reporting errors in both states, Ohio would rank 10th and Colorado would rank last for other on-site waste

management. Pennsylvania would rank second with 2.9 million pounds, and Georgia would rank third with 2.8 million pounds.

Georgia ranked first for transfers off-site for further waste management reported by the miscellaneous manufacturing sector in 1996. The Georgia total was 4.6 million pounds (21.5%), including one facility reporting 2.5 million pounds of copper and another facility (with the same parent company) reporting 1.7 million pounds of ethylene glycol. Both forms were for transfers to recycling. New York ranked second for transfers off-site for further waste management with 3.7 million pounds (17.4%). One New York facility reported transferring 1.3 million pounds of chromium off-site to recycling. Pennsylvania ranked third with 2.8 million pounds (13.0%).

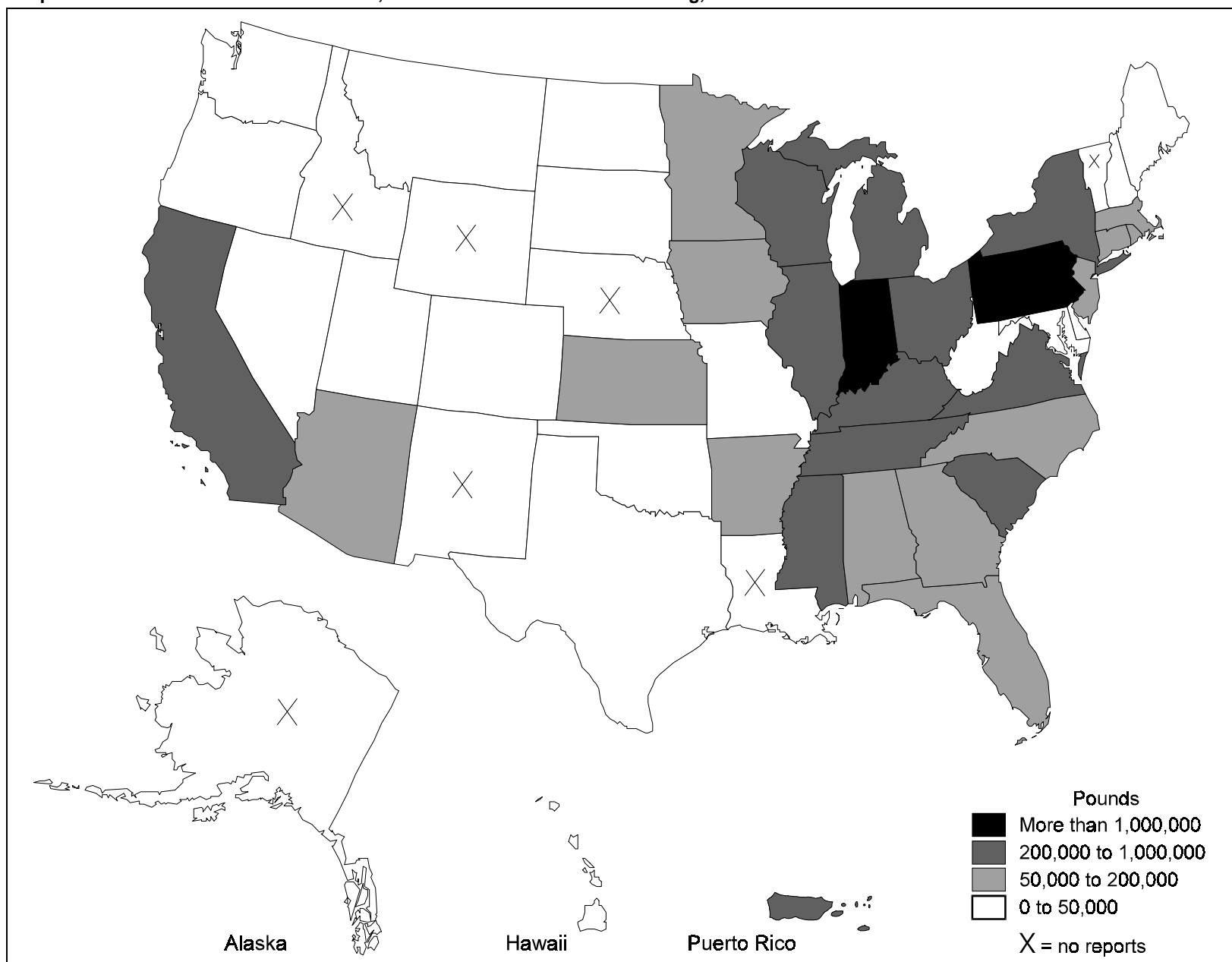


Table 16-6. Summary of TRI Information by State, 1996: Miscellaneous Manufacturing, SIC Code 39

State	Total Facilities Number	Total Forms Number	Form As Number	Total On-site Releases Pounds	Total Off-site Releases Pounds	Total On- and Off-site Releases Pounds	Total Other On-site Waste Management Pounds	Total Transfers Off-site for Further Waste Management Pounds	Total Production-related Waste Pounds	Non-Production-related Waste Pounds
Alabama	7	16	1	197,220	0	197,220	74,150	228,479	585,348	0
Arizona	5	8	0	169,238	4,396	173,634	12,947	136,629	317,869	0
Arkansas	4	8	2	172,314	0	172,314	0	17,239	176,983	0
California	19	37	1	256,958	9,149	266,107	266,855	224,500	705,996	0
Colorado	3	5	0	64	250	314	3,209,773	367,796	3,737,443	0
Connecticut	5	11	0	56,251	30,750	87,001	23,330	23,125	132,391	0
Delaware	1	1	0	1,912	0	1,912	0	0	1,912	0
Florida	9	10	0	96,899	0	96,899	98,006	16,333	209,977	0
Georgia	8	22	1	86,669	13,304	99,973	2,815,027	4,622,481	7,506,080	0
Hawaii	1	1	0	2,350	0	2,350	0	0	2,353	0
Illinois	27	48	5	317,960	55,992	373,952	9,765	862,192	1,465,854	0
Indiana	22	74	2	1,557,189	88,917	1,646,106	36,927	2,127,414	3,931,043	530
Iowa	6	10	1	115,660	0	115,660	22,550	17,900	161,320	0
Kansas	3	9	1	167,165	0	167,165	38,902	18,984	223,177	0
Kentucky	6	17	0	439,463	93,942	533,405	0	179,388	710,835	0
Maine	1	1	0	22,637	0	22,637	0	0	22,637	0
Maryland	4	5	0	1,010	0	1,010	1,055,336	100,280	1,152,833	3,164
Massachusetts	15	33	2	133,433	28,648	162,081	2,141,454	436,057	2,763,297	5,568
Michigan	11	26	0	359,173	4,955	364,128	943,260	267,080	1,595,156	1,110
Minnesota	4	5	1	53,290	0	53,290	40,818	41,558	135,666	0
Mississippi	7	17	1	408,931	0	408,931	26,470	42,258	476,284	0
Missouri	2	9	0	43,312	5,130	48,442	0	15,134	58,461	0
Montana	2	6	5	42,077	0	42,077	31,557	2,250	75,884	0
Nevada	2	5	0	0	0	0	0	26,121	37,319	0
New Hampshire	1	3	0	48,800	0	48,800	0	1,500	49,300	0
New Jersey	12	22	1	55,247	31,972	87,219	338,427	199,260	705,020	0
New York	17	42	0	329,397	80,193	409,590	4,593,116	3,745,642	8,855,761	0
North Carolina	12	18	1	102,739	14,028	116,767	153,266	804,676	1,417,724	1,100
North Dakota	2	4	0	46,213	0	46,213	5,188	0	51,140	0
Ohio	18	53	13	356,104	935	357,039	3,282,691	2,597,196	6,231,975	1,227
Oklahoma	3	7	0	260	1,792	2,052	41,400	44,922	87,949	0
Oregon	4	4	0	39,966	1,785	41,751	0	7,000	48,751	0
Pennsylvania	24	68	3	1,228,573	347,908	1,576,481	2,868,099	2,793,256	7,625,301	0
Puerto Rico	2	2	0	548,017	0	548,017	1,373,651	0	1,921,668	0
Rhode Island	26	41	8	62,330	1,150	63,480	231,441	301,971	610,313	500
South Carolina	7	10	0	377,040	7,352	384,392	66,741	12,685	462,666	11
South Dakota	5	6	1	34,763	0	34,763	0	25,293	59,046	0
Tennessee	10	29	0	462,859	1,705	464,564	31,463	573,869	1,067,331	0
Texas	14	20	3	21,887	750	22,637	0	54,640	88,711	15
Utah	4	6	1	21,407	0	21,407	590,000	55,966	662,127	10
Virginia	3	5	0	515,449	0	515,449	169,862	17,180	594,757	0
Washington	7	8	2	38,148	1,670	39,818	19,000	74,771	133,254	0
West Virginia	1	2	0	750	0	750	2,145	255	2,955	0
Wisconsin	16	32	0	439,651	12,610	452,261	52,430	383,087	778,634	11,302
Total for SIC Code 39	362	766	56	9,430,775	839,283	10,270,058	24,666,047	21,466,367	57,640,501	24,537

**Note:** On-site Releases from Section 5 of Form R. On-site Waste Management from Section 8 of Form R. Off-site Releases from Section 6 (transfers off-site to disposal) of Form R. Total Transfers Off-site for Further Waste Management from Section 6 (excluding transfers off-site to disposal) of Form R. Total Production-related Waste sums Section 8 (Current Year, Column B) of Form R, except: Non-production-related Waste (remedial/catastrophic incidents). One facility in Colorado reported incorrectly under SIC code 39 for 1996. The correct SIC code is 34. The incorrectly reported amounts were as follows: 30 pounds of total releases, 3,209,773 pounds of other on-site waste management, 207,776 pounds of transfers off-site for further waste management and 3,417,119 pounds of total production-related waste. The on-site waste management rank for Colorado changes from 3 to last. The total production-related waste rank for Colorado changes from 6 to 25. Another facility in Ohio incorrectly reported under SIC code 39 for 1996. The correct SIC code is 37. The incorrectly reported amounts were as follows: 2,738 pounds of total releases, 2,867,591 pounds of other on-site waste management, 2,506,231 pounds of transfers off-site for further waste management and 5,376,558 pounds of total production-related waste. The on-site waste management rank for Ohio changes from 2 to 10. The transfers off-site for further waste management rank for Ohio changes from 4 to 19. The total production-related waste rank for Ohio changes from 4 to 12.

**Map 16-1. Total On- and Off-site Releases, 1996: Miscellaneous Manufacturing, SIC Code 39**



**Note: On-site Releases** from Section 5 of Form R and **Off-site Releases** from Section 6 (transfers off-site to disposal) of Form R.



**Table 16-7. The 15 Chemicals with the Largest Total On-site and Off-site Releases, 1996: Miscellaneous Manufacturing, SIC Code 39 (in Rank Order)**

CAS Number	Chemical	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection		On-site Land Releases		Total On-site Releases Pounds	Off-site Releases Transfers Off-site to Disposal Pounds	Total On- and Off-site Releases Pounds
				Class I Wells Pounds	Class II-V Wells Pounds	RCRA Subtitle C Landfills Pounds	Other On-site Land Releases Pounds			
108-88-3	Toluene	3,210,545	1	0	0	0	169	3,210,715	6,655	3,217,370
78-93-3	Methyl ethyl ketone	1,016,787	0	0	0	10,688	0	1,027,475	3,935	1,031,410
1330-20-7	Xylene (mixed isomers)	1,010,266	6	0	0	0	0	1,010,272	1,994	1,012,266
75-09-2	Dichloromethane	870,901	5	0	0	0	0	870,906	0	870,906
100-42-5	Styrene	859,291	250	0	0	519	0	860,060	900	860,960
108-10-1	Methyl isobutyl ketone	424,351	0	0	0	0	0	424,351	3,105	427,456
--	Glycol ethers	402,624	265	0	0	0	265	403,154	0	403,154
117-81-7	Di-(2-ethylhexyl) phthalate	22,306	0	0	0	0	162	22,468	358,638	381,106
79-01-6	Trichloroethylene	312,990	0	0	0	0	0	312,990	0	312,990
110-54-3	n-Hexane	206,320	0	0	0	0	0	206,320	0	206,320
71-36-3	n-Butyl alcohol	191,037	0	0	0	0	0	191,037	0	191,037
110-82-7	Cyclohexane	140,363	0	0	0	0	0	140,363	0	140,363
127-18-4	Tetrachloroethylene	130,808	0	0	0	0	0	130,808	0	130,808
67-56-1	Methanol	124,283	0	0	0	0	0	124,283	15	124,298
--	Zinc compounds	7,259	57	0	0	0	6,755	14,071	95,130	109,201
	Subtotal	8,930,131	584	0	0	11,207	7,351	8,949,273	470,372	9,419,645
	Total for SIC Code 39	9,408,265	2,364	0	0	11,957	8,189	9,430,775	839,283	10,270,058

**Note:** On-site Releases from Section 5 of Form R. Off-site Releases from Section 6 (off-site transfers to disposal) of Form R.

The sector's production-related waste totaled 8.9 million pounds in New York, 7.6 million pounds in Pennsylvania, and 7.5 million pounds in Georgia. These top three states represented 15.4%, 13.2%, and 13.0%, respectively, of the sector's total production-related waste.

Map 16-1 illustrates the geographic distribution of total on- and off-site releases in the miscellaneous manufacturing sector.

## 1996 TRI Data by Chemical for Miscellaneous Manufacturing

In 1996, the miscellaneous manufacturing sector reported larger total on- and off-site releases for toluene than for any other chemical, 3.2 million pounds. The sector reported comparable amounts for the second- and third-ranked chemicals: 1.03 million pounds of methyl ethyl ketone and 1.01 million pounds of xylenes. Air emissions accounted for 98% or more of the releases reported for these

three chemicals and for 10 others among the top 15. Table 16-7 presents the top 15 chemicals for total on- and off-site releases reported by the miscellaneous manufacturing sector in 1996.

As indicated earlier, three industries in this sector reported large air emissions of toluene. Miscellaneous manufacturing industries (SIC code 3999) reported 1.0 million pounds, including 545,000 pounds by one facility. The burial caskets industry (SIC code 3995) reported 993,000 pounds, including 214,000 pounds by one facility. The miscellaneous sporting and athletic goods industry (SIC code 3949) reported 718,000 pounds, including 402,000 pounds by one facility. Toluene is used in wood finishing and metal cutting processes that also apply in casket manufacturing. Production processes that use toluene in the manufacture of some sporting and athletic goods are the same as some processes used in the rubber and plastics sector.

Off-site releases (transfers to disposal) constituted the majority of the sector's reported releases for two of the top 15 chemicals: di-(2-ethylhexyl) phthalate (359,000 pounds, mostly by one facility



## Chapter 16 — TRI Data for Miscellaneous Manufacturing

**Table 16-8. TRI On-site and Off-site Releases of OSHA Carcinogens by 4-digit SIC Code, 1996: Miscellaneous Manufacturing, SIC Code 39 (in Rank Order)**

SIC Code	Industry	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection		On-site Land Releases		Total On-site Releases Pounds	Off-site Releases		Total On- and Off-site Releases Pounds
				Class I Wells Pounds	Class II-V Wells Pounds	RCRA Subtitle C Landfills Pounds	Other Releases Pounds		Transfers Off-site to Disposal Pounds		
3999	Manufacturing Industries, nec*	1,328,693	5	0	0	0	0	1,328,698	49,390		1,378,088
3996	Hard Surface Floor Coverings, nec*	31,470	0	0	0	0	162	31,632	358,638		390,270
3949	Sporting & Athletic Goods, nec*	330,153	440	0	0	519	395	331,507	5,650		337,157
3931	Musical Instruments	137,611	0	0	0	0	0	137,611	33,600		171,211
3993	Signs & Advertising Specialities	97,389	0	0	0	0	0	97,389	0		97,389
3914	Silverware & Plated Ware	77,639	568	0	0	0	0	78,207	7,456		85,663
3965	Fasteners, Buttons, Needles, & Pins	57,308	116	0	0	0	0	57,424	0		57,424
3951	Pens & Mechanical Pencils	47,805	0	0	0	0	0	47,805	0		47,805
3953	Marking Devices	45,220	0	0	0	0	0	45,220	0		45,220
3995	Burial Caskets	20,463	0	0	0	0	0	20,463	2,681		23,144
3952	Lead Pencils & Art Goods	20,980	0	0	0	0	0	20,980	0		20,980
3911	Jewelry, Precious Metal	10,374	0	0	0	0	0	10,374	0		10,374
	Invalid SIC Code within SIC Code 39	3,107	41	0	0	0	0	3,148	0		3,148
3991	Brooms & Brushes	1,255	0	0	0	0	0	1,255	0		1,255
3944	Games, Toys, & Children's Vehicles	1,100	0	0	0	0	0	1,100	0		1,100
	Multiple within SIC Code 39	66	0	0	0	0	0	66	0		66
	Subtotal	2,210,633	1,170	0	0	519	557	2,212,879	457,415		2,670,294
	Total for SIC Code 39	9,408,265	2,364	0	0	11,957	8,189	9,430,775	839,283		10,270,058

**Note:** On-site Releases from Section 5 of Form R. Off-site Releases from Section 6 (off-site transfers to disposal) of Form R. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category.

\*nec: not elsewhere classified.

in SIC code 3996) and zinc compounds (95,000 pounds).

## OSHA Carcinogens

As shown in Table 16-8, the miscellaneous manufacturing sector reported total releases in 1996 of 2.7 million pounds of chemicals designated as OSHA carcinogens, or one-fourth (26.0%) of all releases reported in this sector in 1996. (OSHA carcinogens and the bases for their designation appear in Box 1-9 in Chapter 1.) Reported releases of OSHA carcinogens amounted to one-fourth (23.5%) of the sector's total air emissions, but more than half (54.5%) of all off-site releases (transfers to disposal) reported by this sector.

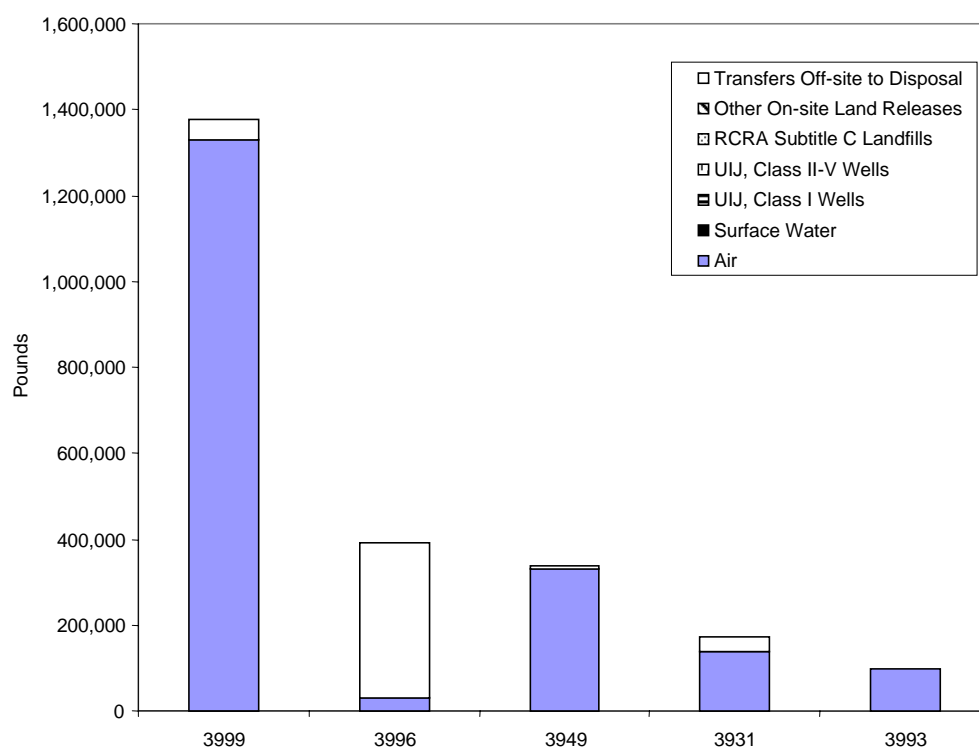
Five of the top 15 chemicals for total releases reported by this sector were OSHA carcinogens. These were dichloromethane with releases totaling 871,000 pounds, styrene with 861,000 pounds, di-(2-ethylhexyl) phthalate with 381,000 pounds, trichloroethylene with 313,000 pounds, and tetrachloroethylene with 131,000 pounds (see Table

16-7). Reported releases of these OSHA carcinogens consisted almost entirely of air emissions, except for di-(2-ethylhexyl) phthalate, largely reported as off-site releases (transfers to disposal).

Miscellaneous manufacturing industries (SIC code 3999) ranked first in this sector for releases of OSHA carcinogens and reported air emissions of 1.3 million pounds of these chemicals, including much of the dichloromethane (590,000 pounds) and styrene (554,000 pounds). The miscellaneous hard surface floor coverings industry (SIC code 3996) ranked second with 359,000 pounds of off-site releases (transfers to disposal). As noted, one facility in this industry reported transfers to disposal of 329,000 pounds of di-(2-ethylhexyl) phthalate.

Figure 16-7 shows the on- and off-site releases of the four-digit SIC codes with the largest OSHA carcinogen releases.





**Figure 16-7. TRI On-site and Off-site Releases of OSHA Carcinogens, SIC Codes with Largest Totals, 1996: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** On-site Releases from Section 5 of Form R. Off-site Releases from Section 6 (off-site transfers to disposal) of Form R. UIJ = underground injection.

## 1996 TRI Chemicals in Waste for Miscellaneous Manufacturing

Table 16-9 and Figure 16-8 present waste management data for all industries in SIC code 39. The miscellaneous manufacturing sector reported production-related waste totaling 57.6 million pounds in 1996. The sector reported 18.5 million pounds (32.0% of total production-related waste) as off-site recycling and another 16.5 million pounds (28.7%) as on-site recycling. Among waste management options, quantities released on- and off-site ranked third in this sector with 10.8 million pounds (18.8%). Other waste management options accounted for less than 10% each of the sector's total production-related waste.

The fasteners, buttons, needles, and pins industry (SIC code 3965) reported one-fourth (26.3%) of the sector's off-site recycling, with 4.9 million pounds. The silverware and plated ware (SIC code 3914) industry ranked second with 3.3 million pounds (18.1%), followed by the forms reporting invalid SIC codes within SIC code 39, explained earlier in this chapter, with 2.9 million pounds (15.5%). Forms reporting invalid SIC codes include 2.5 million pounds of off-site recycling reported by the facility that should have reported in SIC code 3714. Taking into account this error, the burial caskets industry (SIC code 3995) would rank third, with 2.2 million pounds.

Miscellaneous manufacturing industries (SIC code 3999) reported the largest on-site recycling, with 5.2 million pounds (31.5%), but as noted this included 3.0 million pounds of zinc compounds by a facility that should have reported in SIC code

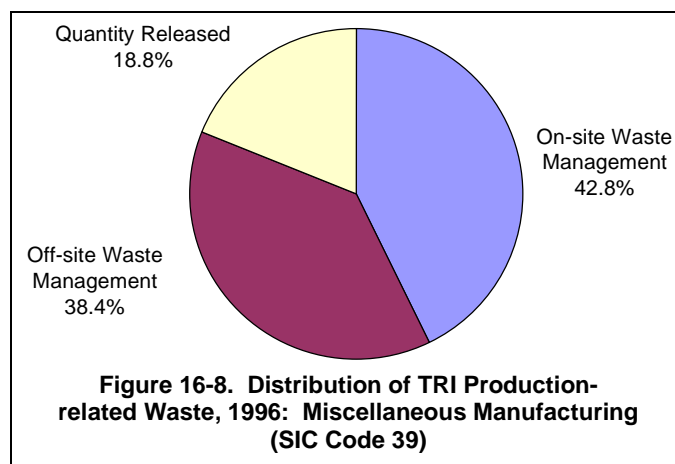


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3499. The forms with invalid SIC codes reported 2.9 million pounds (17.4%), which should have been reported in SIC code 3714. The fasteners, buttons, needles, and pins industry reported 2.8 million pounds (17.0%) and would rank first for on-site recycling when these errors are taken into account. As noted above, the signs and advertising specialties industry (SIC code 3993) would rank second with 2.1 million pounds, and the miscellaneous sporting and athletic goods industry (SIC code 3949) would rank third with 1.2 million pounds.

For quantities released on- and off-site, the miscellaneous manufacturing industries (SIC code 3999) reported this sector's largest amounts, totaling 3.5 million pounds (31.9% of the sector's total). The burial caskets industry (SIC code 3995) reported the second-largest amount, 2.3 million pounds (21.2%). The miscellaneous sporting and athletic goods industry (SIC code 3949) ranked third, reporting 2.0 million pounds (18.1%).

As noted earlier, the carbon paper and inked ribbon industry (SIC code 3955) reported almost all of the sector's on-site energy recovery in 1996. This industry reported 3.3 million pounds, which was 98.2% of the sector's total. This industry also



Note: Data from Section 8 of Form R.

**Table 16-9. Quantities of TRI Chemicals in Waste by 4-digit SIC Code, 1996: Miscellaneous Manufacturing, SIC Code 39 (in Rank Order)**

SIC Code	Industry	Recycled On-site Pounds	Energy Recovery On-site Pounds	Treated On-site Pounds	Recycled Off-site Pounds	Energy Recovery Off-site Pounds	Treated Off-site Pounds	Quantity Released On- and Off-site Pounds	Total Production-related Waste Pounds	Non-Production-related Waste Pounds
3999	Manufacturing Industries, nec*	5,200,553	0	1,370,332	1,610,127	1,340,773	127,702	3,456,873	13,106,360	2,327
3965	Fasteners, Buttons, Needles, & Pins	2,803,777	0	8,866	4,850,068	9,499	123,345	118,183	7,913,738	0
3955	Carbon Paper & Inked Ribbons	257,181	3,303,299	1,726,874	520,000	120,184	171,505	542,719	6,641,762	0
	Invalid SIC Code within SIC Code 39	2,869,736	0	18,000	2,866,773	0	25	402,120	6,156,654	1,110
3949	Sporting & Athletic Goods, nec*	1,230,154	31,230	669,210	1,243,677	52,426	247,909	1,958,474	5,433,080	3,200
3995	Burial Caskets	12,486	0	0	2,216,905	256,990	40,559	2,297,576	4,824,516	530
3914	Silverware & Plated Ware	201,557	0	129,794	3,345,475	3,000	34,005	118,428	3,832,259	5,568
3993	Signs & Advertising Specialties	2,098,136	0	49,161	901,950	76,877	53,927	237,137	3,417,188	11,302
3996	Hard Surface Floor Coverings, nec*	837,196	0	355,436	80,242	398,740	181,190	733,347	2,586,151	0
3931	Musical Instruments	946,313	0	58,493	185,740	27,120	38,908	364,852	1,621,426	0
3951	Pens & Mechanical Pencils	17,622	24,508	0	204,304	109,547	32,324	116,056	504,361	0
3944	Games, Toys, & Children's Vehicles	22,250	0	103,300	23,204	60,730	0	227,635	437,119	0
3911	Jewelry, Precious Metal	19,840	0	113,500	31,326	0	1,881	70,063	236,610	500
3915	Jewelers' Materials & Lapidary Work	0	3,300	20,052	192,647	0	500	3,094	219,593	0
3953	Marking Devices	1,422	0	0	0	30,196	110,162	49,721	191,501	0
3991	Brooms & Brushes	0	0	140,400	0	0	1,590	24,107	166,097	0
	Multiple within SIC Code 39	5,884	0	7,035	39,886	23,690	14,253	68,296	159,044	0
3952	Lead Pencils & Art Goods	0	0	0	129,460	0	0	21,571	151,031	0
3961	Costume Jewelry	9,150	0	0	19,810	233	707	12,111	42,011	0
Total for SIC Code 39		16,533,257	3,362,337	4,770,453	18,461,594	2,510,005	1,180,492	10,822,363	57,640,501	24,537

Note: Data from Section 8 of Form R. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 3,209,200 pounds of recycling on-site and 3,417,119 pounds of total production-related waste. The rank of SIC code 3999 for recycling on-site changes from 1 to 4. Another facility incorrectly reported under an invalid SIC code within SIC code 39 for 1996. The correct SIC code is 3714. The incorrectly reported amounts were as follows: 2,867,591 pounds of recycling on-site, 2,490,479 pounds of recycling off-site, 18,488 of quantity released and 5,376,558 pounds of total production-related waste. The total production-related waste rank for invalid SIC code within SIC code 39 changes from 4 to 10.

\*nec: not elsewhere classified.



reported the largest on-site treatment, 1.7 million pounds, or 36.2%, followed by miscellaneous manufacturing industries (SIC code 3999) with 1.4 million pounds (28.7%) and miscellaneous sporting and athletic goods (SIC code 3949) with 669,000 pounds (14.0%).

The miscellaneous manufacturing industries (SIC code 3999) reported more than half (53.4%) of the sector's total for off-site energy recovery with 1.3 million pounds. The miscellaneous hard surface floor coverings industry (SIC code 3996) ranked second in this category, reporting 399,000 pounds (15.9%), and the burial caskets industry (SIC code 3995) ranked third, reporting 257,000 pounds (10.2%).

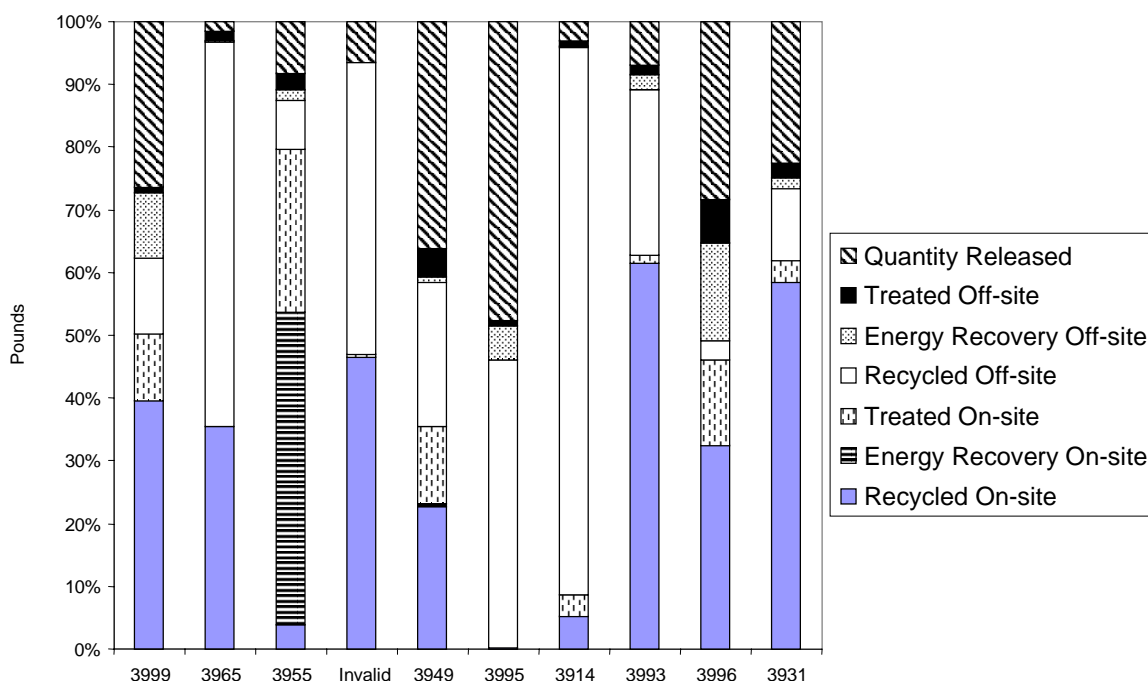
The miscellaneous sporting and athletic goods industry (SIC code 3949) reported 248,000 pounds of off-site treatment, which was 21.0% of the sector's total in this category. The miscellaneous

hard surface floor coverings industry (SIC code 3996) ranked second with 181,000 pounds (15.3%). The carbon paper and inked ribbons industry (SIC code 3955) ranked third with 172,000 pounds (14.5%).

Distribution of production-related waste for the top industries in the sector appears in Figure 16-9.

## Projected Quantities of TRI Chemicals in Waste

The miscellaneous manufacturing sector projected little net change in production-related waste from 1996, when the sector reported a total of 57.6 million pounds, to 1998, when it projected a total of 57.4 million pounds. This projection would represent a 0.5% decrease. The miscellaneous manufacturing sector's projections of waste management data through 1998 appear in Table 16-10. (As explained in Chapter 1, facilities not



**Figure 16-9. Distribution of Production-related Waste, SIC Codes with Largest Totals, 1996: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** Data from Section 8 of Form R. Invalid SIC codes are codes beginning "39" that do not exist in the current Standard Industrial Classification code system. One facility reported incorrectly under an invalid SIC code within SIC code 39 for 1996. The correct SIC code is 3714. The incorrectly reported amount was 5,376,558 pounds of total production-related waste. The rank for invalid SIC code within SIC code 39 changes from 4 to 10.



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only report current data but project waste management quantities for the next two years in their TRI submissions.)

The sector projected an 8.2% reduction in quantities released on- and off-site, from 10.8 million pounds in 1996 to 9.9 million pounds in 1998, the largest projected decrease in both pounds and percent. The sector also expected a 4.3%

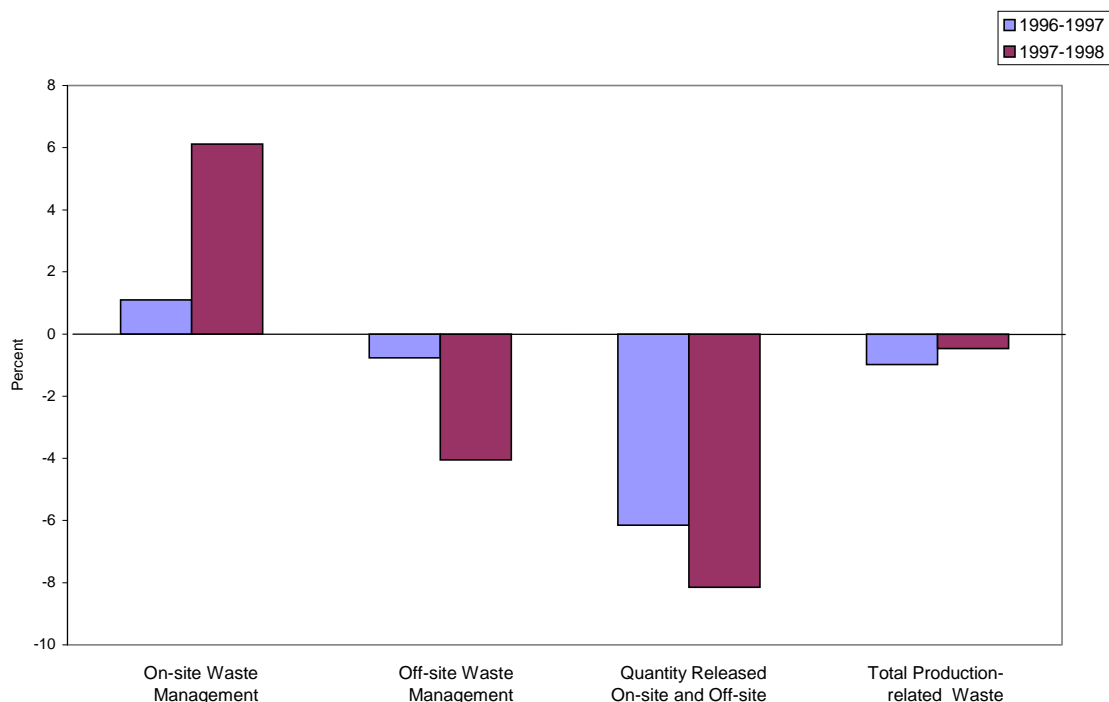
reduction in off-site recycling, from 18.5 million pounds to 17.7 million pounds. Together, these two projected decreases would amount to a reduction of 1.7 million pounds from 1996 to 1998.

A smaller reduction was also projected in off-site treatment, from 1.2 million pounds to 1.1 million pounds (a 7.8% decrease). The sector projected essentially no change in off-site energy recovery.

**Table 16-10. Current Year and Projected Quantities of TRI Chemicals in Waste, 1996-1998: Miscellaneous Manufacturing, SIC Code 39**

Waste Management Activity	Current Year 1996		Projected 1997		Projected 1998	
	Total Pounds	Percent of Total	Total Pounds	Percent of Total	Total Pounds	Percent of Total
<u>On-site Waste Management</u>						
Recycled On-site	16,533,257	28.7	16,218,327	28.4	16,901,445	29.5
Energy Recovery On-site	3,362,337	5.8	3,687,600	6.5	4,192,884	7.3
Treated On-site	4,770,453	8.3	5,030,925	8.8	5,078,412	8.9
<u>Off-site Waste Management</u>						
Recycled Off-site	18,461,594	32.0	18,283,897	32.0	17,662,211	30.8
Energy Recovery Off-site	2,510,005	4.4	2,616,519	4.6	2,505,492	4.4
Treated Off-site	1,180,492	2.0	1,082,775	1.9	1,088,925	1.9
Quantity Released On- and Off-site	10,822,363	18.8	10,156,678	17.8	9,940,334	17.3
Total Production-related Waste for SIC Code 39	57,640,501	100.0	57,076,721	100.0	57,369,703	100.0
Waste Management Activity	Projected Change		Projected Change		Projected Change	
	1996-1997 Percent		1997-1998 Percent		1996-1998 Percent	
<u>On-site Waste Management</u>						
Recycled On-site	-1.9		4.2		2.2	
Energy Recovery On-site	9.7		13.7		24.7	
Treated On-site	5.5		0.9		6.5	
<u>Off-site Waste Management</u>						
Recycled Off-site	-1.0		-3.4		-4.3	
Energy Recovery Off-site	4.2		13.7		-0.2	
Treated Off-site	-8.3		0.9		-7.8	
Quantity Released On- and Off-site	-6.2		-2.1		-8.2	
Total Production-related Waste for SIC Code 39	-1.2		0.5		-0.5	

**Note:** Current year and projected year amounts are all taken from Section 8 of Form R for 1996.



**Figure 16-10. Projected Percentage Change in Quantities of TRI Chemicals in Waste, 1996-1998: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** Current year and projected year amounts are all taken from Section 8 of Form R for 1996.

The sector projected its largest increase, in pounds and percent, in on-site energy recovery, from 3.4 million pounds to 4.2 million pounds, or 24.7%. Increases were also projected in on-site recycling, from 16.5 million pounds to 16.9 million pounds (a 2.2% increase) and in on-site treatment, from 4.8 million pounds to 5.1 million pounds (a 6.5% increase). These projected increases would total an increase of 1.5 million pounds.

Figure 16-10 illustrates the projected percentage changes in on-site waste management, off-site waste management, quantities released on- and off-site, and total production-related waste.

The miscellaneous manufacturing sector's projections primarily indicate changes in where, rather than how, the sector expects to manage its TRI chemicals in waste. The projected data do, however, represent some potential improvement in the sector's management of TRI chemicals in waste. Quantities released would decrease as a

percentage of total production-related waste (from 18.8% in 1996 to 17.3% in 1998, as shown in Table 16-10). Energy recovery (on-site and off-site) would increase somewhat as a proportion of production-related waste. In terms of the waste management hierarchy, explained in Chapter 1, energy recovery is a more desirable option than releases for waste that cannot be prevented.

## Source Reduction Activity

The miscellaneous manufacturing sector submitted 195 forms that indicated one or more source reduction activities underway in 1996, as shown in Table 16-11. These forms represented one-fourth (25.5%) of all forms submitted by the sector. The miscellaneous manufacturing industries (SIC code 3999) submitted 52 of these forms, the largest number submitted by any industry in this sector. This number amounted to one-fifth (21.1%) of the forms submitted in SIC code 3999. The miscellaneous sporting and athletic goods industry



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**Table 16-11. Number of Forms Reporting Source Reduction Activity, 1996: Miscellaneous Manufacturing, SIC Code 39**

SIC Code	Industry	Total Forms Number	Forms Reporting Source Reduction Activities		Category of Source Reduction Activity							
			Number	Percent of All Forms Percent	Good Operating Practices Number	Inventory Control Number	Spill and Leak Prevention Number	Raw Material Modifications Number	Process Modifications Number	Cleaning and Degreasing Number	Surface Preparation and Finishing Number	Product Modifications Number
3911	Jewelry, Precious Metal	25	7	28.0	2	3	0	0	3	4	0	0
3914	Silverware & Plated Ware	33	6	18.2	1	0	2	2	2	1	0	0
3915	Jewelers' Materials & Lapidary Work	14	3	21.4	2	0	0	1	0	0	0	0
3931	Musical Instruments	30	10	33.3	1	0	0	0	0	3	6	0
3944	Games, Toys, & Children's Vehicles	21	5	23.8	3	0	0	2	0	0	0	0
3949	Sporting & Athletic Goods, nec*	123	31	25.2	13	2	4	8	4	1	1	4
3951	Pens & Mechanical Pencils	23	7	30.4	3	0	0	0	2	2	0	0
3952	Lead Pencils & Art Goods	8	0	0.0	0	0	0	0	0	0	0	0
3953	Marking Devices	11	3	27.3	3	0	2	2	0	0	0	0
3955	Carbon Paper & Inked Ribbons	14	12	85.7	12	0	0	0	4	0	0	0
3961	Costume Jewelry	9	1	11.1	0	0	0	0	0	0	1	0
3965	Fasteners, Buttons, Needles, & Pins	23	4	17.4	2	0	0	0	1	1	0	0
3991	Brooms & Brushes	6	2	33.3	2	0	1	0	0	0	0	0
3993	Signs & Advertising Specialities	29	10	34.5	3	0	1	5	0	3	2	1
3995	Burial Caskets	90	29	32.2	16	0	0	14	3	0	7	2
3996	Hard Surface Floor Coverings, nec*	32	8	25.0	3	0	3	1	6	0	0	0
3999	Manufacturing Industries, nec*	245	52	21.2	17	12	8	8	18	1	5	8
	Multiple within SIC Code 39	15	5	33.3	1	0	0	5	1	0	1	0
	Invalid SIC Code within SIC Code 39	15	0	0.0	0	0	0	0	0	0	0	0
	Total for SIC Code 39	766	195	25.5	84	17	21	48	44	16	23	15

**Note:** Forms with more than one 4-digit SIC code within code 39 are assigned to the "multiple" category.

**\*nec:** not elsewhere classified.

(SIC code 3949) submitted the second-largest total, 31 forms, or one-fourth (25.2%) of that industry's forms. The burial caskets industry (SIC code 3995) ranked third with 29, nearly one-third (32.2%) of that industry's forms.

Improved operating practices were the most frequently cited source reduction activity, reported on 84 forms, as shown in Table 16-11. Raw material modifications appeared on 48 forms, and process modifications on 44 forms.

## Year-to-Year Comparisons for Miscellaneous Manufacturing

### 1995-1996 TRI Data for Miscellaneous Manufacturing

The number of forms submitted by the miscellaneous manufacturing sector decreased from

813 in 1995 to 766 in 1996, a 5.8% reduction, as shown in Table 16-12. The sector submitted relatively few Form As, but these increased 19.1% from 47 in 1995 to 56 in 1996. (The Form A certification statement is explained in Chapter 1.) This may reflect more widespread awareness of the Form A certification statement in its second year of availability.

### On- and Off-site Releases

Total on- and off-site releases reported by the miscellaneous manufacturing sector, decreased 25.9%, from 13.9 million pounds in 1995 to 10.3 million pounds in 1996, as shown in Table 16-12. Approximately two-thirds of the overall 3.6 million-pound reduction was reported in air emissions. The sector reported a 20.2% reduction in air emissions, from 11.8 million pounds in 1995 to 9.4 million pounds in 1996. Both fugitive and point-source emissions decreased, as shown in Table 16-12. The remaining one-third of the overall reduction was reported as a decrease in off-site releases (transfers to disposal), which decreased



**Table 16-12. Comparison of TRI On-site and Off-site Releases, Other On-site Waste Management, and Transfers Off-site for Further Waste Management, 1995-1996: Miscellaneous Manufacturing, SIC Code 39**

	1995 Number	1996 Number	Change 1995 to 1996 Percent
Total Facilities	367	362	-1.4
Total Forms	813	766	-5.8
Form Rs	766	710	-7.3
Form As	47	56	19.1
	Pounds	Pounds	Percent
<u>On-site Releases</u>			
Total Air Emissions	11,794,890	9,408,265	-20.2
Fugitive Air	3,751,675	1,929,982	-48.6
Point Source Air	8,043,215	7,478,283	-7.0
Surface Water Discharges	2,005	2,364	17.9
Underground Injection	0	0	--
On-site Land Releases	18,818	20,146	7.1
Total On-site Releases	11,815,713	9,430,775	-20.2
<u>Off-site Releases</u>			
Transfers Off-site to Disposal	2,053,205	839,283	-59.1
Total On- and Off-site Releases	13,868,918	10,270,058	-25.9
<u>Other On-site Waste Management</u>			
Recycled On-site	13,537,716	16,533,257	22.1
Energy Recovery On-site	2,598,693	3,362,337	29.4
Treated On-site	6,027,332	4,770,453	-20.9
Total Other On-site Waste Management	22,163,741	24,666,047	11.3
<u>Transfers Off-site for Further Waste Management</u>			
Transfers to Recycling	15,956,147	17,835,260	11.8
Transfers to Energy Recovery	2,918,970	2,479,411	-15.1
Transfers to Treatment	601,499	516,301	-14.2
Transfers to POTWs	846,029	635,395	-24.9
Other Off-site Transfers	2,140	0	-100.0
Total Transfers Off-site for Further Waste Management	20,324,785	21,466,367	5.6

**Note:** **On-site Releases** from Section 5 of Form R and **Off-site Releases** from Section 6 (transfers off-site to disposal) of Form R. **Other On-site Waste Management** from Section 8 of Form R. **Transfers Off-site for Further Waste Management** from Section 6 (excluding transfers off-site to disposal) of Form R. Breakdown of Underground Injection and On-site Land Releases not required in 1995. Other Off-site Transfers are transfers reported without a valid waste management code. One facility reported incorrectly under SIC code 39 for 1996. The correct SIC code is 37. The incorrectly reported amounts were 3,209,200 pounds of recycling on-site and 3,209,773 pounds of total other on-site waste management. Another facility incorrectly reported under SIC code 39 for 1995 and 1996. The correct SIC code is 37. The incorrectly reported amounts for 1995 were as follows: 3,270,607 pounds of recycling on-site, 3,270,607 pounds of total other on-site waste management, 2,602,832 pounds of transfers to recycling and 2,614,809 pounds of total transfers off-site for further waste management. The incorrectly reported amounts for 1996 were as follows: 2,867,591 pounds of recycling on-site, 2,867,591 pounds of total on-site waste management, 2,490,481 pounds of transfers to recycling and 2,506,231 pounds of total transfers off-site for further waste management. Accounting for these two facility errors, the percentage change in recycling on-site changes from 22.1% to 1.8%, in total other on-site waste management changes from 11.3% to -14.9%, in transfers to recycling changes from 11.8% to 14.9% and in total transfers off-site for further waste management changes from 5.6% to 7.1%.



59.1% from 2.1 million pounds in 1995 to 839,000 pounds in 1996. Much of the reduction in off-site releases reflects a decrease in off-site releases of di-(2-ethylhexyl) phthalate. One facility in SIC code 3996 (miscellaneous hard surface floor coverings), mentioned earlier, reported 1.2 million pounds of off-site releases of this chemical in 1995 and 329,000 pounds in 1996.

The sector reported very small amounts of on-site releases to surface waters and to land in 1995 and 1996. Increases in these two release types totaled less than 2,000 pounds.

Figure 16-11 illustrates the percentage change in on- and off-site releases reported by the miscellaneous manufacturing sector from 1995 to 1996.

#### **Other On-site Waste Management**

The miscellaneous manufacturing sector reported 22.2 million pounds of other on-site waste management in 1995 and 24.7 million pounds in 1996, as shown in Table 16-12. This constituted an 11.3% increase. The sector reported an increase in on-site recycling from 13.5 million pounds to 16.5 million pounds, or 22.1%. Most of this increase consisted of a 2.7 million-pound increase by the facility, mentioned earlier in this chapter, that should have reported in SIC code 3499. Without this reporting error, on-site recycling would show an increase of 1.8% and total other on-site waste management would show a decrease of 14.9%. The miscellaneous manufacturing sector also reported an increase in on-site energy recovery, from 2.6 million pounds to 3.4 million pounds or 29.4%. These increases were partly offset by a reduction in on-site treatment from 6.0 million pounds to 4.8 million pounds, or 20.9%.

#### **Transfers Off-site for Further Waste Management**

Transfers off-site for further waste management increased from 20.3 million pounds in 1995 to 21.5

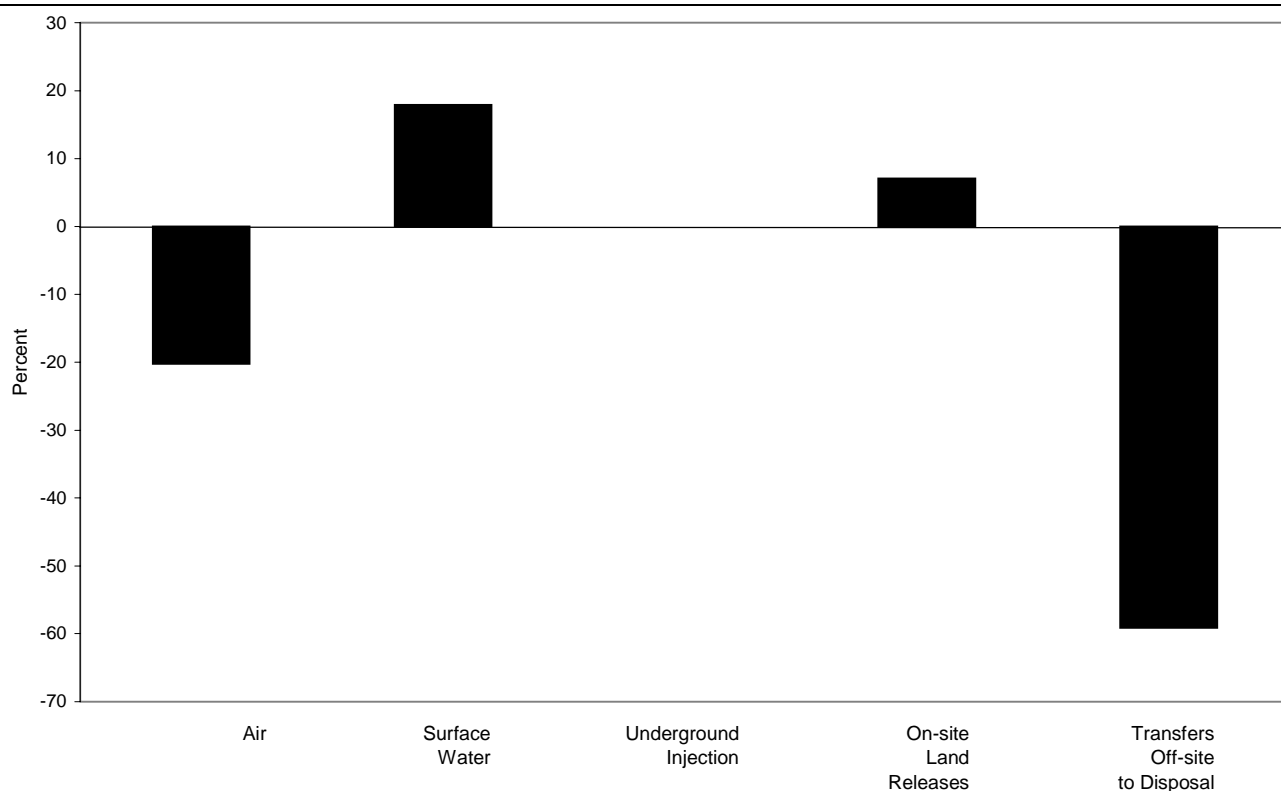
million pounds in 1996, as shown in Table 16-12. This 5.6% increase reflected an 11.8% increase in transfers to recycling (from 16.0 million pounds to 17.8 million pounds), partly offset by reductions in other transfer types. Without the reporting errors previously mentioned, the increase in total transfers off-site for further waste management would be 7.1% and the increase in transfers to recycling would be 14.9%. The sector reported a reduction in transfers to energy recovery from 2.9 million pounds in 1995 to 2.5 million pounds in 1996 (a 15.1% reduction). Transfers to treatment decreased 14.2% from 601,000 pounds to 516,000 pounds, and transfers to POTWs decreased 24.9% from 846,000 pounds to 635,000 pounds.

### **1988-1996 TRI Data for Miscellaneous Manufacturing**

As explained in Chapter 1, comparisons from the 1988 TRI baseline year to the current year rely on the list of “core” TRI chemicals that were reportable, with the same reporting definition, in all years. These multi-year comparisons also review only the data elements that were collected in all years, which excludes from this section any analysis that distinguishes RCRA subtitle C landfills from other land releases as well as analysis based on the types of underground injection wells. On-site waste management data and transfers off-site to recycling and to energy recovery have been collected only since 1991; these data are included, but cannot be compared across the full 1988-1996 period.

The number of forms reporting miscellaneous manufacturing SIC codes dropped 24.0% from 867 in 1988 to 659 in 1996, as presented in Table 16-13. On- and off-site releases of the 1988-1996 “core” chemicals decreased by 69.8%, or 22.7 million pounds, and decreases occurred in all release media, as shown in Figure 16-12.





**Figure 16-11. Percentage Change in On-site and Off-site Releases, 1995-1996: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** On-site Releases from Section 5 of Form R and Off-site Releases from Section 6 (transfers off-site to disposal) of Form R. Breakdown of Underground Injection and On-site Land Releases not required in 1995.

Reductions in air emissions accounted for most of the overall decrease. The sector reported decreases from 1988 to 1996 of 80.8% (from 9.1 million pounds to 1.7 million pounds) in fugitive emissions and 61.9% (from 19.1 million pounds to 7.3 million pounds) in point-source emissions. The reduction in off-site releases (transfers to disposal) amounted to 80.9% (from 4.1 million pounds to 785,000 pounds), again reflecting a decrease in transfers to disposal of di-(2-ethylhexyl) phthalate by one facility (see “Facilities with Large Increases and Decreases in Releases, 1988-1996,” below).

The sector reported small amounts of surface water discharges, underground injection, and on-site land releases, all with reductions from 1988 to 1996.

On-site waste management and transfers off-site for recycling or energy recovery were not collected in 1988. For the 1994-1996 period, other on-site waste management activities reported by the miscellaneous manufacturing sector showed an increase of 566,000 pounds, from 23.3 million pounds to 23.9 million pounds. These data also appear in Table 16-13. The sector reported an increase from 2.2 million pounds to 3.4 million pounds in on-site energy recovery. Amounts reported for on-site recycling decreased from 16.8 million pounds to 16.2 million pounds. However, on-site recycling amounts for 1994 to 1996 include an increase from zero pounds to 3.2 million pounds by the facility that reported SIC code 3999 in error (instead of SIC code 3499). The sector also reported a small reduction in on-site treatment in 1996.



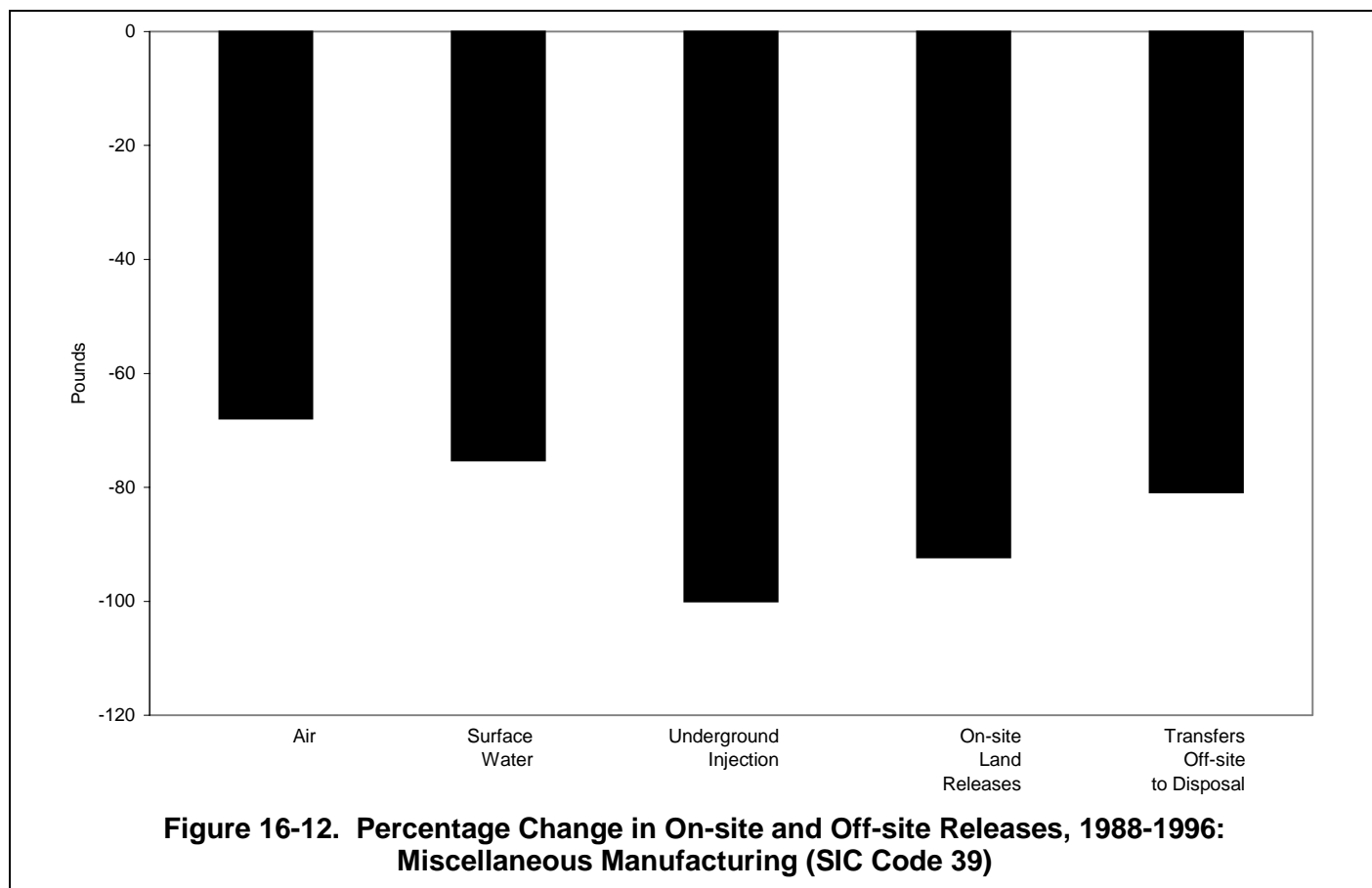
## Chapter 16 — TRI Data for Miscellaneous Manufacturing

**Table 16-13. Comparison of TRI On-site and Off-site Releases, Other On-site Waste Management, and Transfers Off-site for Further Waste Management, 1988 and 1994-1996: Miscellaneous Manufacturing, SIC Code 39**

	1988 Number	1994 Number	1995 Number	1996 Number	Change 1988 to 1996 Percent
Total Facilities	391	356	333	327	-16.4
Total Forms	867	725	689	659	-24.0
Form Rs	867	725	670	628	-27.6
Form As	NA	NA	19	31	NA
	Pounds	Pounds	Pounds	Pounds	Percent
<u>On-site Releases</u>					
Total Air Emissions	28,213,814	13,873,708	11,332,461	9,036,184	-68.0
Fugitive Air	9,086,683	3,910,089	3,501,401	1,747,636	-80.8
Point Source Air	19,127,131	9,963,619	7,831,060	7,288,548	-61.9
Surface Water Discharges	8,076	1,479	1,646	1,996	-75.3
Underground Injection	1	250	0	0	-100.0
On-site Land Releases	260,421	10,323	5,595	20,146	-92.3
Total On-site Releases	28,482,312	13,885,760	11,339,702	9,058,326	-68.2
<u>Off-site Releases</u>					
Transfers Off-site to Disposal	4,110,398	1,464,408	1,946,153	785,077	-80.9
Total On- and Off-site Releases	32,592,710	15,350,168	13,285,855	9,843,403	-69.8
<u>Other On-site Waste Management</u>					
Recycled On-site	NA	16,760,689	13,528,305	16,183,601	NA
Energy Recovery On-site	NA	2,195,201	2,598,693	3,362,337	NA
Treated On-site	NA	4,339,879	5,114,534	4,316,265	NA
Total Other On-site Waste Management	NA	23,295,769	21,241,532	23,862,203	NA
<u>Transfers Off-site for Further Waste Management</u>					
Transfers to Recycling	NA	18,360,745	15,943,140	17,806,220	NA
Transfers to Energy Recovery	NA	2,772,212	2,908,242	2,444,745	NA
Transfers to Treatment	5,060,326	832,811	572,659	490,100	-90.3
Transfers to POTWs	286,025	473,115	439,136	298,349	4.3
Other Off-site Transfers	369,598	19,107	2,140	0	-100.0
Total Transfers Off-site for Further Waste Management	NA	22,457,990	19,865,317	21,039,414	NA

**Note:** Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid. **On-site Releases** from Section 5 of Form R and **Off-site Releases** from Section 6 (transfers off-site to disposal) of Form R. **Other On-site Waste Management** from Section 8 of Form R. **Transfers Off-site for Further Waste Management** from Section 6 (excluding transfers off-site to disposal) of Form R. Breakdown of Underground Injection and On-site Land Releases not required before 1996. For 1994-1996, Other Off-site Transfers are transfers reported without a valid waste management code. For 1988, Other Off-site Transfers are transfers reported without a valid waste management code or codes not required to be reported in 1988. One facility reported incorrectly under SIC code 39 for 1996. The correct SIC code is 34. The incorrectly reported amounts were as follows: 3,209,200 pounds of recycling on-site and 3,209,773 pounds of other on-site waste management. Another facility incorrectly reported under SIC code 39 for 1995 and 1996. The correct SIC code is 37. The incorrectly reported amounts for 1995 were as follows: 3,270,607 pounds of recycling on-site, 3,270,607 pounds of total other on-site waste management, 2,602,832 pounds of transfers to recycling and 2,614,809 pounds of total transfers off-site for further waste management. The incorrectly reported amounts for 1996 were as follows: 2,867,591 pounds of recycling on-site, 2,867,591 pounds of total on-site waste management, 2,490,481 pounds of transfers to recycling and 2,506,231 pounds of total transfers off-site for further waste management.

**NA:** not required to be reported in that year.



**Note:** Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid. **On-site Releases** from Section 5 of Form R and **Off-site Releases** from Section 6 (transfers off-site to disposal) of Form R. Breakdown of Underground Injection and On-site Land Releases not required before 1996.

For the full 1988-1996 comparison period, the miscellaneous manufacturing sector reported a reduction in transfers to treatment from 5.1 million pounds to 490,000 pounds. Transfers to POTWs increased from 1988 to 1996, although the reported amounts represented a decrease in the more recent years (1994 to 1996), as shown in Table 16-13.

#### 1988-1996 Data for Four-Digit Industries in Miscellaneous Manufacturing

Tables 16-14 through 16-16 summarize data for 1988 and 1994-1996 for industries at the four-digit SIC code level within SIC code 39. The tables present, respectively, on- and off-site releases, other on-site waste management, and transfers off-site for further waste management.

#### **On- and Off-site Releases**

The miscellaneous hard surface floor coverings industry (SIC code 3996) reported the sector's largest decrease in on- and off-site releases from 1988 to 1996. This industry reported 6.4 million pounds of total releases in 1988 and 559,000 pounds in 1996. The miscellaneous manufacturing industries (SIC code 3999) ranked second, with a reduction from 7.6 million pounds to 3.3 million pounds. Ranking third, the miscellaneous sporting and athletic goods industry (SIC code 3949) reported 4.5 million pounds in 1988 and 1.7 million pounds in 1996. In all three industries, the largest portion of the reported reduction occurred in air emissions, along with a smaller reduction in off-site releases (transfers to disposal).



The burial caskets industry (SIC code 3995) ranked first for increases in total releases. This industry reported 2.3 million pounds in 1988 and 2.4 million pounds in 1996. The marking devices industry (SIC code 3953) reported the second-largest increase, from 34,000 pounds to 51,000 pounds, although this industry reported reductions from 1994 to 1996. The lead pencils and art goods industry (SIC code 3952) ranked third, with a small increase from 21,300 pounds to 21,500 pounds. In all three industries, an increase in air emissions was partly offset by a decrease in off-site releases (transfers to disposal). No other industry in SIC code 39 reported an increase in total releases from 1988 to 1996.

Table 16-14 provides release data for all four-digit SIC codes in the miscellaneous manufacturing sector, for 1988-1996.

### **Other On-site Waste Management**

The miscellaneous hard surface floor coverings industry (SIC code 3996) reported 6.4 million pounds of other on-site waste management in 1994 and 1.2 million pounds in 1996, the sector's largest reduction (on-site waste management data were not collected in 1988). The musical instruments industry (SIC code 3931) reported the second-largest decrease, from 1.5 million pounds to 989,000 pounds. In these two industries, reductions reported in on-site recycling accounted for most or all of the overall decrease. The pens and mechanical pencils industry (SIC code 3951) ranked third for decreases, with a reduction from 62,000 pounds to 42,000 pounds. In this industry, on-site treatment along with on-site energy recovery accounted for the decrease.

The miscellaneous manufacturing industries (SIC code 3999) ranked first for increases, with 1.9 million pounds in 1994 and 6.2 million pounds in 1996. On-site recycling was the principal component of this increase, but this included a reporting error of 3.2 million pounds by the facility that should have reported in SIC code 3499.

Without this error, the miscellaneous manufacturing industries (SIC code 3999) would rank second, behind the carbon paper and inked ribbons industry (SIC code 3955), which reported 3.8 million pounds in 1994 and 5.3 million pounds in 1996. In this industry, on-site energy recovery accounted for the largest portion of the increase. Ranking third, the fasteners, buttons, needles, and pins (SIC code 3965) reported an increase from 2.1 million pounds to 2.8 million pounds. This increase was attributable to on-site recycling.

On-site waste management data for 1994-1996 appear in Table 16-15.

### **Transfers Off-site for Further Waste Management**

The silverware and plated ware industry (SIC code 3914) reported the sector's largest reduction in transfers off-site for further waste management, from 4.0 million pounds in 1994 to 3.4 million pounds in 1996 (data for some types of off-site transfers were not collected in 1988). However, this industry's 1995 level was lower (2.7 million pounds) than its 1996 total. The miscellaneous sporting and athletic goods industry (SIC code 3949) ranked second, reporting 1.3 million pounds in 1994 and 812,000 pounds in 1996. For both industries, the largest portion of the reduction was reported in transfers to recycling. The miscellaneous hard surface floor coverings industry (SIC code 3996) ranked third with a reduction from 821,000 pounds to 663,000 pounds. For this industry, transfers to POTWs and transfers to energy recovery showed the largest reductions.

The carbon paper and inked ribbons industry (SIC code 3955) ranked first for increases in the miscellaneous manufacturing sector's reporting of transfers off-site for further waste management. This industry reported 504,000 pounds in 1994 and 764,000 pounds in 1996. The signs and advertising specialties industry (SIC code 3993) ranked second, reporting 825,000 pounds in 1994 and 990,000



**Table 16-14. TRI On-site and Off-site Releases by 4-digit SIC Code, 1988 and 1994-1996: Miscellaneous Manufacturing, SIC Code 39**

SIC Code	Industry	Year	On-site Releases				Off-site Releases		Total On- and Off-site Releases Pounds
			Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total On-site Releases Pounds	Transfers Off-site to Disposal Pounds	
3911	Jewelry, Precious Metal	96	10,649	0	0	0	10,649	38,760	49,409
		95	2,929	0	0	0	2,929	100,865	103,794
		94	25,194	0	0	0	25,194	30	25,224
		88	291,901	0	0	0	291,901	9,195	301,096
3914	Silverware & Plated Ware	96	78,970	680	0	0	79,650	43,960	123,610
		95	48,622	447	0	0	49,069	38,371	87,440
		94	98,235	256	0	0	98,491	37,379	135,870
		88	339,251	1,284	0	0	340,535	4,812	345,347
3915	Jewelers' Materials & Lapidary Work	96	315	0	0	0	315	500	815
		95	510	0	0	0	510	500	1,010
		94	861	0	0	0	861	149,206	150,067
		88	166,283	0	0	0	166,283	160	166,443
3931	Musical Instruments	96	317,951	0	0	0	317,951	51,635	369,586
		95	494,111	0	0	0	494,111	42,999	537,110
		94	748,319	0	0	4,340	752,659	46,909	799,568
		88	1,013,580	0	0	0	1,013,580	44,273	1,057,853
3942	Dolls & Stuffed Toys	96	No reports received						
		95	No reports received						
		94	No reports received						
		88	128	0	0	0	128	16,948	17,076
3944	Games, Toys, & Children's Vehicles	96	222,605	0	0	0	222,605	90	222,695
		95	173,268	0	0	0	173,268	0	173,268
		94	426,145	0	0	0	426,145	0	426,145
		88	773,060	0	0	0	773,060	87,000	860,060
3949	Sporting & Athletic Goods, nec*	96	1,621,815	475	0	8,862	1,631,152	42,023	1,673,175
		95	2,049,037	204	0	5,076	2,054,317	177,415	2,231,732
		94	2,474,209	206	0	4,179	2,478,594	175,652	2,654,246
		88	4,108,832	0	0	0	4,108,832	368,389	4,477,221
3951	Pens & Mechanical Pencils	96	103,753	0	0	0	103,753	5,993	109,746
		95	161,991	0	0	0	161,991	10,016	172,007
		94	165,279	0	0	0	165,279	5,399	170,678
		88	574,835	0	0	0	574,835	204,703	779,538
3952	Lead Pencils & Art Goods	96	21,480	0	0	0	21,480	0	21,480
		95	22,601	0	0	0	22,601	0	22,601
		94	12,250	0	0	0	12,250	0	12,250
		88	21,000	0	0	0	21,000	250	21,250
3953	Marking Devices	96	50,996	0	0	0	50,996	0	50,996
		95	61,241	0	0	0	61,241	0	61,241
		94	95,942	0	0	0	95,942	0	95,942
		88	33,033	0	0	0	33,033	1,312	34,345
3955	Carbon Paper & Inked Ribbons	96	543,719	0	0	0	543,719	0	543,719
		95	633,085	0	0	0	633,085	46	633,131
		94	734,736	0	0	0	734,736	7,373	742,109
		88	3,109,334	180	0	0	3,109,514	362	3,109,876

**Note:** On-site Releases from Section 5 of Form R and Off-site Releases from Section 6 (transfers off-site to disposal) of Form R. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category.

\*nec: not elsewhere classified.



## Chapter 16 — TRI Data for Miscellaneous Manufacturing

**Table 16-14. TRI On-site and Off-site Releases by 4-digit SIC Code, 1988 and 1994-1996: Miscellaneous Manufacturing, SIC Code 39, Continued**

SIC Code	Industry	Year	On-site Releases				Total On-site Releases Pounds	Off-site Releases	Total On- and Off-site Releases Pounds
			Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds		Transfers Off-site to Disposal Pounds	
3961	Costume Jewelry	96	12,109	0	0	0	12,109	0	12,109
		95	13,643	0	0	0	13,643	0	13,643
		94	27,890	0	0	0	27,890	0	27,890
		88	486,201	134	0	0	486,335	19,704	506,039
3965	Fasteners, Buttons, Needles, & Pins	96	106,058	211	0	0	106,269	13,804	120,073
		95	207,847	236	0	0	208,083	9,174	217,257
		94	148,154	225	0	0	148,379	11,267	159,646
		88	86,919	1,020	0	16	87,955	280,822	368,777
3991	Brooms & Brushes	96	16,738	0	0	0	16,738	0	16,738
		95	14,832	0	0	0	14,832	0	14,832
		94	206,733	0	0	0	206,733	0	206,733
		88	91,467	0	0	227,870	319,337	227,870	547,207
3993	Signs & Advertising Specialities	96	239,980	0	0	0	239,980	0	239,980
		95	380,481	0	0	0	380,481	0	380,481
		94	431,319	0	0	0	431,319	13,896	445,215
		88	681,748	0	0	0	681,748	0	681,748
3995	Burial Caskets	96	2,329,150	515	0	265	2,329,930	33,652	2,363,582
		95	2,271,762	250	0	0	2,272,012	35,263	2,307,275
		94	2,466,285	515	0	0	2,466,800	36,582	2,503,382
		88	2,213,561	0	0	0	2,213,561	80,241	2,293,802
3996	Hard Surface Floor Coverings, nec*	96	128,035	29	0	331	128,395	430,627	559,022
		95	285,150	500	0	500	286,150	1,319,129	1,605,279
		94	432,565	250	250	0	433,065	634,437	1,067,502
		88	4,202,628	0	0	0	4,202,628	2,158,525	6,361,153
3999	Manufacturing Industries, nec*	96	3,135,108	41	0	10,688	3,145,837	124,008	3,269,845
		95	4,225,691	9	0	19	4,225,719	177,517	4,403,236
		94	4,993,462	27	0	1,804	4,995,293	306,878	5,302,171
		88	7,008,928	1,627	1	28,168	7,038,724	527,007	7,565,731
	Multiple within SIC Code 39	96	63,227	0	0	0	63,227	0	63,227
		95	152,411	0	0	0	152,411	1,003	153,414
		94	166,596	0	0	0	166,596	15,514	182,110
		88	341,742	586	0	0	342,328	55,283	397,611
	Invalid SIC Code within SIC Code 39	96	33,526	45	0	0	33,571	25	33,596
		95	133,249	0	0	0	133,249	33,855	167,104
		94	219,534	0	0	0	219,534	23,886	243,420
		88	2,669,383	3,245	0	4,367	2,676,995	23,542	2,700,537
	Total for SIC Code 39	96	9,036,184	1,996	0	20,146	9,058,326	785,077	9,843,403
		95	11,332,461	1,646	0	5,595	11,339,702	1,946,153	13,285,855
		94	13,873,708	1,479	250	10,323	13,885,760	1,464,408	15,350,168
		88	28,213,814	8,076	1	260,421	28,482,312	4,110,398	32,592,710

**Note:** On-site Releases from Section 5 of Form R and Off-site Releases from Section 6 (transfers off-site to disposal) of Form R. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category.

\*nec: not elsewhere classified.



**Table 16-15. TRI Other On-site Waste Management by 4-digit SIC Code, 1988 and 1994-1996: Miscellaneous Manufacturing, SIC Code 39**

SIC Code	Industry	Year	Recycled On-site Pounds	Energy Recovery On-site Pounds	Treated On-site Pounds	Total Other On-site Waste Management Pounds
3911	Jewelry, Precious Metal	96	19,840	0	113,500	133,340
		95	20,000	0	127,710	147,710
		94	52,389	0	82,935	135,324
		88	NA	NA	NA	NA
3914	Silverware & Plated Ware	96	201,557	0	94,007	295,564
		95	130,000	0	107,365	237,365
		94	133,000	0	107,427	240,427
		88	NA	NA	NA	NA
3915	Jewelers' Materials & Lapidary Work	96	0	3,300	19,153	22,453
		95	0	0	22,230	22,230
		94	0	0	27,491	27,491
		88	NA	NA	NA	NA
3931	Musical Instruments	96	946,313	0	43,083	989,396
		95	1,189,337	0	23,558	1,212,895
		94	1,446,757	0	27,945	1,474,702
		88	NA	NA	NA	NA
3942	Dolls & Stuffed Toys	96	No reports received			
		95	No reports received			
		94	No reports received			
		88	NA	NA	NA	NA
3944	Games, Toys, & Children's Vehicles	96	22,250	0	103,300	125,550
		95	29,450	0	132,000	161,450
		94	24,161	0	75,700	99,861
		88	NA	NA	NA	NA
3949	Sporting & Athletic Goods, nec*	96	1,109,605	31,230	406,610	1,547,445
		95	999,853	0	542,197	1,542,050
		94	593,211	0	646,721	1,239,932
		88	NA	NA	NA	NA
3951	Pens & Mechanical Pencils	96	17,622	24,508	0	42,130
		95	16,173	32,520	0	48,693
		94	10,800	33,633	18,000	62,433
		88	NA	NA	NA	NA
3952	Lead Pencils & Art Goods	96	0	0	0	0
		95	0	0	0	0
		94	0	0	0	0
		88	NA	NA	NA	NA
3953	Marking Devices	96	1,422	0	0	1,422
		95	3,383	0	0	3,383
		94	611	0	0	611
		88	NA	NA	NA	NA
3955	Carbon Paper & Inked Ribbons	96	257,181	3,303,299	1,726,874	5,287,354
		95	292,504	2,559,073	1,866,872	4,718,449
		94	256,025	2,161,568	1,394,335	3,811,928
		88	NA	NA	NA	NA

**Note:** Data from Section 8 of Form R. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 3,209,200 pounds of recycling on-site, 573 pounds treatment on-site and 3,209,773 pounds of other on-site waste management. Another facility incorrectly reported under an invalid SIC code within 39 for 1994, 1995 and 1996. The correct SIC code is 3714. The incorrectly reported amounts were as follows: 3,496,860 pounds of recycling on-site for 1994, 3,270,607 pounds of recycling on-site for 1995 and 2,867,591 pounds of recycling on-site for 1996.

\*nec: not elsewhere classified.



## Chapter 16 — TRI Data for Miscellaneous Manufacturing

**Table 16-15. TRI Other On-site Waste Management by 4-digit SIC Code, 1988 and 1994-1996: Miscellaneous Manufacturing, SIC Code 39, Continued**

SIC Code	Industry	Year	Recycled On-site Pounds	Energy Recovery On-site Pounds	Treated On-site Pounds	Total Other On-site Waste Management Pounds
3961	Costume Jewelry	96	9,150	0	0	9,150
		95	6,000	0	0	6,000
		94	6,114	0	0	6,114
		88	NA	NA	NA	NA
3965	Fasteners, Buttons, Needles, & Pins	96	2,803,777	0	8,866	2,812,643
		95	1,983,270	0	19,712	2,002,982
		94	2,052,600	0	27,420	2,080,020
		88	NA	NA	NA	NA
3991	Brooms & Brushes	96	0	0	140,400	140,400
		95	0	0	150,000	150,000
		94	0	0	0	0
		88	NA	NA	NA	NA
3993	Signs & Advertising Specialties	96	2,098,136	0	49,161	2,147,297
		95	1,627,020	0	56,553	1,683,573
		94	1,992,975	0	126,816	2,119,791
		88	NA	NA	NA	NA
3995	Burial Caskets	96	12,486	0	0	12,486
		95	6,013	0	2,830	8,843
		94	17,760	0	5,336	23,096
		88	NA	NA	NA	NA
3996	Hard Surface Floor Coverings, nec*	96	837,196	0	355,436	1,192,632
		95	2,629,328	7,100	729,357	3,365,785
		94	5,657,244	0	712,052	6,369,296
		88	NA	NA	NA	NA
3999	Manufacturing Industries, nec*	96	4,971,452	0	1,237,875	6,209,327
		95	1,227,977	0	1,144,773	2,372,750
		94	940,548	0	964,205	1,904,753
		88	NA	NA	NA	NA
	Multiple within SIC Code 39	96	5,884	0	0	5,884
		95	11,861	0	21	11,882
		94	7,442	0	16,271	23,713
		88	NA	NA	NA	NA
	Invalid SIC Code within SIC Code 39	96	2,869,730	0	18,000	2,887,730
		95	3,356,136	0	189,356	3,545,492
		94	3,569,052	0	107,225	3,676,277
		88	NA	NA	NA	NA
	Total for SIC Code 39	96	16,183,601	3,362,337	4,316,265	23,862,203
		95	13,528,305	2,598,693	5,114,534	21,241,532
		94	16,760,689	2,195,201	4,339,879	23,295,769
		88	NA	NA	NA	NA

**Note:** Data from Section 8 of Form R. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 3,209,200 pounds of recycling on-site, 573 pounds treatment on-site and 3,209,773 pounds of other on-site waste management. Another facility incorrectly reported under an invalid SIC code within 39 for 1994, 1995 and 1996. The correct SIC code is 3714. The incorrectly reported amounts were as follows: 3,496,860 pounds of recycling on-site for 1994, 3,270,607 pounds of recycling on-site for 1995 and 2,867,591 pounds of recycling on-site for 1996.

\*nec: not elsewhere classified.





pounds in 1996. The miscellaneous manufacturing industries (SIC code 3999) reported the third-largest increase, from 2.8 million pounds to 3.0 million pounds, although this included the facility that reported in SIC code 3999 in error. Without this facility, the miscellaneous manufacturing industries would show a small decrease. For all three industries, the increase was attributable to transfers to recycling.

Table 16-16 presents transfers off-site for further waste management reported by the miscellaneous manufacturing sector for 1988 to 1996.

#### Facilities with Large Increases and Decreases in Releases, 1988-1996

Coatings Incorporated & Company in Bayamon, Puerto Rico (SIC code 3999), had the largest increase in releases with 545,000 pounds. Point-source air emissions of toluene in 1996 accounted for 100% of the increase. No data were reported for toluene in 1988. The facility could not be reached for comment. See also "Facilities with Large Increases and Decreases in Waste Management, 1991-1996."

Pre Con, Inc., in Petersburg, Virginia (did not report in 1988, SIC code 3999 in 1996), ranked second with a 515,000 pound increase. This facility did not go into operation until 1992.

Dichloromethane, used as a solvent in the production of a laminated web, accounted for 71% of the increase.

Batesville Casket Company, Inc., in Batesville, Mississippi (did not report in 1988, SIC code 3995 in 1996), was the third-ranked facility for increases with 246,000 pounds. The casket manufacturing plant started production in late 1988 and did not

exceed the reporting threshold for any TRI chemical in that year. Xylene (mixed isomers) accounted for 46% of reported releases in 1996 and, therefore, 46% of the facility's increase. The 1996 xylene (mixed isomers) releases were reported as fugitive and point-source air emissions. The chemical is a constituent of wood stain.

Armstrong World Industries, Inc., in Lancaster, Pennsylvania (SIC code 3996), ranked first in decreases of releases with 3.2 million pounds. This facility produces vinyl tile and vinyl sheet flooring for home and commercial applications. Di-(2-ethylhexyl) phthalate was used as a plasticizer in production processes and was gradually replaced by another, unlisted, phthalate ester. Most di-(2-ethylhexyl) phthalate releases were reported under the category transfers off-site for disposal. The facility sent scrap material to off-site landfills. Di-(2-ethylhexyl) phthalate was eliminated from use following the 1996 reporting year, according to the facility contact.

Congoleum Corporation in Marcus Hook, Pennsylvania (SIC code 3996), was second in decreases with a 2.4 million-pound reduction. A manufacturer of vinyl sheet flooring, this facility phased out the usage of 1,1,1-trichloroethane as a solvent in a printing operation. This was achieved by reformulating the solvent. No data were reported for the chemical in 1996.

Kurz-Hastings, Inc., in Philadelphia, Pennsylvania (SIC code 3999), ranked third in decreases with 1.0 million pounds. The reduction was partly the result of improving systems for capturing solvent fumes. Fugitive air emissions of toluene accounted for 100% of the reduction. There were no reported fugitive emissions of toluene in 1996. The chemical is used in a solvent transfer system in the production of a wood-grain laminate product.



## Chapter 16 — TRI Data for Miscellaneous Manufacturing

**Table 16-16. TRI Transfers Off-site for Further Waste Management by 4-digit SIC Code, 1988 and 1994-1996: Miscellaneous Manufacturing, SIC Code 39**

SIC Code	Industry	Year	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Other Off-site Transfers Pounds	Total Transfers Off-site for Further Waste Management Pounds
3911	Jewelry, Precious Metal	96	33,284	0	1,881	25	0	35,190
		95	45,698	0	3,930	100,015	0	149,643
		94	68,158	0	8,443	265	0	76,866
		88	NA	NA	2,240	179	0	NA
3914	Silverware & Plated Ware	96	3,349,597	0	29,757	257	0	3,379,611
		95	2,654,974	5,400	32,047	509	0	2,692,930
		94	3,973,455	9,800	65,284	515	0	4,049,054
		88	NA	NA	66,385	163	1,048	NA
3915	Jewelers' Materials & Lapidary Work	96	191,987	0	0	5	0	191,992
		95	266,634	0	0	5	0	266,639
		94	152,088	0	2,895	10,063	0	165,046
		88	NA	NA	8,229	33,914	0	NA
3931	Musical Instruments	96	174,318	30,006	34,281	510	0	239,115
		95	193,431	17,958	39,228	510	0	251,127
		94	193,093	122,786	23,508	265	0	339,652
		88	NA	NA	278,053	250	76,422	NA
3942	Dolls & Stuffed Toys	96	No reports received					
		95	No reports received					
		94	No reports received					
		88	NA	NA	0	0	0	NA
3944	Games, Toys, & Children's Vehicles	96	23,366	60,800	0	0	0	84,166
		95	23,500	33,000	2,600	0	0	59,100
		94	29,900	15,531	913	0	6,567	52,911
		88	NA	NA	43,341	0	25,409	NA
3949	Sporting & Athletic Goods, nec*	96	715,109	49,681	46,038	1,418	0	812,246
		95	743,309	51,891	107,474	1,507	0	904,181
		94	1,093,772	57,574	112,229	2,193	12,540	1,278,308
		88	NA	NA	85,295	70,606	1,703	NA
3951	Pens & Mechanical Pencils	96	230,470	108,984	19,604	13,070	0	372,128
		95	210,890	110,035	3,020	13,054	0	336,999
		94	262,702	85,095	1,460	364	0	349,621
		88	NA	NA	84,051	742	57,000	NA
3952	Lead Pencils & Art Goods	96	129,460	0	0	0	0	129,460
		95	211,334	0	0	3,900	0	215,234
		94	24,321	2,000	1,500	3,300	0	31,121
		88	NA	NA	1,900	250	0	NA

**Note: Transfers Off-site for Further Waste Management** from Section 6 (excluding transfers off-site to disposal) of Form R. Other Off-site Transfers are transfers reported without a valid waste management code. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 206,766 pounds of transfers to recycling, 1,000 pounds of transfers to treatment, 10 pounds of transfers to POTWs and 207,776 pounds of total transfers off-site for further waste management. Another facility incorrectly reported under an invalid SIC code within 39 for 1994, 1995 and 1996. The correct SIC code is 3714. The incorrectly reported amounts were as follows: 2,601,069 pounds for 1994, 2,614,809 pounds for 1995 and 2,506,231 pounds for 1996 of total transfers off-site for further waste management.

\*nec: not elsewhere classified.



**Table 16-16. TRI Transfers Off-site for Further Waste Management by 4-digit SIC Code, 1988 and 1994-1996: Miscellaneous Manufacturing, SIC Code 39, Continued**

SIC Code	Industry	Year	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Other Off-site Transfers Pounds	Total Transfers Off-site for Further Waste Management Pounds
3953	Making Devices	96	0	29,961	16,032	5	0	45,998
		95	9,001	22,647	2,290	37	0	33,975
		94	0	16,460	70,561	1,430	0	88,451
		88	NA	NA	19,375	80,200	0	NA
3955	Carbon Paper & Inked Ribbons	96	520,000	120,184	123,466	0	0	763,650
		95	36,000	530,078	124,109	0	0	690,187
		94	41,913	165,864	296,691	0	0	504,468
		88	NA	NA	99,676	430	0	NA
3961	Costume Jewelry	96	16,819	233	707	250	0	18,009
		95	20,267	407	845	250	0	21,769
		94	6,024	467	476	250	0	7,217
		88	NA	NA	2,436	1,000	1,795	NA
3965	Fasteners, Buttons, Needles, & Pins	96	4,854,496	17,709	29,571	80,550	0	4,982,326
		95	4,404,125	17,445	42,092	73,034	2,140	4,538,836
		94	4,878,380	1,269	38,615	65,048	0	4,983,312
		88	NA	NA	13,921	73	0	NA
3991	Brooms & Brushes	96	0	0	1,609	0	0	1,609
		95	3,800	0	461	0	0	4,261
		94	3,550	0	432	0	0	3,982
		88	NA	NA	13,187	0	0	NA
3993	Signs & Advertising Specialities	96	896,352	76,925	15,951	978	0	990,206
		95	887,131	88,882	2,773	275	0	979,061
		94	704,976	70,453	48,436	795	0	824,660
		88	NA	NA	88,455	500	9,000	NA
3995	Burial Caskets	96	2,124,074	256,589	1,045	14,975	0	2,396,683
		95	1,684,185	197,959	1,020	2,550	0	1,885,714
		94	2,197,376	154,024	1,045	19,696	0	2,372,141
		88	NA	NA	100,972	37,636	382	NA
3996	Hard Surface Floor Coverings, nec*	96	80,033	437,871	4,027	141,298	0	663,229
		95	64,652	554,876	13,471	137,227	0	770,226
		94	76	541,523	23,006	256,185	0	820,790
		88	NA	NA	589,682	0	75,800	NA
3999	Manufacturing Industries, nec*	96	1,547,804	1,231,653	149,014	42,954	0	2,971,425
		95	1,325,271	1,218,624	161,348	104,170	0	2,809,413
		94	1,134,331	1,466,622	124,088	102,865	0	2,827,906
		88	NA	NA	2,923,097	37,633	99,039	NA

**Note: Transfers Off-site for Further Waste Management** from Section 6 (excluding transfers off-site to disposal) of Form R. Other Off-site Transfers are transfers reported without a valid waste management code. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the "multiple" category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 206,766 pounds of transfers to recycling, 1,000 pounds of transfers to treatment, 10 pounds of transfers to POTWs and 207,776 pounds of total transfers off-site for further waste management. Another facility incorrectly reported under an invalid SIC code within 39 for 1994, 1995 and 1996. The correct SIC code is 3714. The incorrectly reported amounts were as follows: 2,601,069 pounds for 1994, 2,614,809 pounds for 1995 and 2,506,231 pounds for 1996 of total transfers off-site for further waste management.

\*nec: not elsewhere classified.



## Chapter 16 — TRI Data for Miscellaneous Manufacturing

**Table 16-16. TRI Transfers Off-site for Further Waste Management by 4-digit SIC Code, 1988 and 1994-1996: Miscellaneous Manufacturing, SIC Code 39, Continued**

SIC Code	Industry	Year	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Other Off-site Transfers Pounds	Total Transfers Off-site for Further Waste Management Pounds
	Multiple within SIC Code 39	96	34,276	24,149	1,390	26	0	59,841
		95	46,953	37,287	1,576	303	0	86,119
		94	28,240	42,588	2,513	7,087	0	80,428
		88	NA	NA	105,989	254	21,000	NA
	Invalid SIC Code within SIC Code 39	96	2,884,775	0	15,727	2,028	0	2,902,530
		95	3,111,985	21,753	34,375	1,790	0	3,169,903
		94	3,568,390	20,156	10,716	2,794	0	3,602,056
		88	NA	NA	534,042	22,195	1,000	NA
	Total for SIC Code 39	96	17,806,220	2,444,745	490,100	298,349	0	21,039,414
		95	15,943,140	2,908,242	572,659	439,136	2,140	19,865,317
		94	18,360,745	2,772,212	832,811	473,115	19,107	22,457,990
		88	NA	NA	5,060,326	286,025	369,598	NA

**Note: Transfers Off-site for Further Waste Management** from Section 6 (excluding transfers off-site to disposal) of Form R. Other Off-site Transfers are transfers reported without a valid waste management code. Forms with more than one 4-digit SIC code within SIC code 39 are assigned to the “multiple” category. One facility reported incorrectly under SIC code 3999 for 1996. The correct SIC code is 3499. The incorrectly reported amounts were as follows: 206,766 pounds of transfers to recycling, 1,000 pounds of transfers to treatment, 10 pounds of transfers to POTWs and 207,776 pounds of total transfers off-site for further waste management. Another facility incorrectly reported under an invalid SIC code within 39 for 1994, 1995 and 1996. The correct SIC code is 3714. The incorrectly reported amounts were as follows: 2,601,069 pounds for 1994, 2,614,809 pounds for 1995 and 2,506,231 pounds for 1996 of total transfers off-site for further waste management.

### Other Apparent Increases and Decreases in Releases, 1988-1996

In the TRI database, there are other facilities with large apparent increases and decreases, which have been identified as reporting errors or plant closures. Because these are errors or plant closures and not actual changes in the data, these facilities are not discussed in detail here. There is one such facility in the miscellaneous manufacturing sector:

NER Data Products, Inc., Des Moines, Iowa,  
decrease of 1.4 million pounds, plant closure.

### 1991-1996 Waste Management Data for Miscellaneous Manufacturing

Table 16-17 summarizes on- and off-site waste management data for the miscellaneous manufacturing sector for 1991, when TRI began

collecting this information, and the three most recent years (1994-1996). The sector reported a 6.3% reduction in total production-related waste from 59.8 million pounds in 1991 to 56.0 million pounds in 1996. Without the facility reporting errors described in this chapter, the sector’s reduction in total production-related waste would be 21.1%.

The sector recorded its largest reduction (in pounds) in quantities released, which decreased from 20.8 million pounds in 1991 to 10.3 million pounds in 1996. This represented a 50.4% reduction. The largest percentage decrease occurred in reporting of on-site treatment, a 58.7% reduction from 10.5 million pounds in 1991 to 4.3 million pounds in 1996. Decreases were also reported in off-site treatment (from 1.5 million pounds to 796,000 pounds) and in off-site energy recovery (from 2.6 million pounds to 2.5 million pounds).



Table 16-17. TRI Waste Management Data, 1991, 1994-1996: Miscellaneous Manufacturing, SIC Code 39

Waste Management Activity	1991 Pounds	1994 Pounds	1995 Pounds	1996 Pounds
<u>On-site Waste Management</u>				
Recycled On-site	11,849,561	16,760,689	13,528,305	16,269,601
Energy Recovery On-site	75,628	2,195,201	2,598,693	3,362,337
Treated On-site	10,454,947	4,339,879	5,114,534	4,316,265
Total On-site Waste Management	22,380,136	23,295,769	21,241,532	23,948,203
<u>Off-site Waste Management</u>				
Recycled Off-site	12,552,543	19,096,279	16,484,511	18,449,724
Energy Recovery Off-site	2,555,525	2,730,907	2,943,948	2,473,379
Treated Off-site	1,503,661	1,279,271	1,100,684	795,812
Total Off-site Waste Management	16,611,729	23,106,457	20,529,143	21,718,915
Quantity Released On- and Off-site	20,762,514	15,966,769	13,792,739	10,300,340
Total Production-related Waste	59,754,379	62,368,995	55,563,414	55,967,458
Non-Production-related Waste	36,472	20,242	22,467	24,262
Waste Management Activity	Change 1994-1995 Percent	Change 1995-1996 Percent	Change 1991-1996 Percent	
<u>On-site Waste Management</u>				
Recycled On-site	-19.3	20.3	37.3	
Energy Recovery On-site	18.4	29.4	4,345.9	
Treated On-site	17.8	-15.6	-58.7	
Total On-site Waste Management	-8.8	12.7	7.0	
<u>Off-site Waste Management</u>				
Recycled Off-site	-13.7	11.9	47.0	
Energy Recovery Off-site	7.8	-16.0	-3.2	
Treated Off-site	-14.0	-27.7	-47.1	
Total Off-site Waste Management	-11.2	5.8	30.7	
Quantity Released On- and Off-site	-13.6	-25.3	-50.4	
Total Production-related Waste	-10.9	0.7	-6.3	
Non-Production-related Waste	11.0	8.0	-33.5	

**Note:** Does not include delisted chemicals, chemicals added in 1994 and 1995, ammonia, hydrochloric acid, and sulfuric acid. Data from Section 8 of Form R (Current Year, Column B) of year indicated. One facility reported incorrectly under SIC code 39 for 1996. The correct SIC code is 34. (Continued on next page.)



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These represented reductions of 47.1% and 3.2%, respectively.

The sector reported a 47.0% increase in off-site recycling, from 12.6 million pounds in 1991 to 18.4 million pounds in 1996. Amounts reported for on-site recycling increased 37.3% from 11.8 million pounds to 16.3 million pounds. Increases in both on-site and off-site recycling reflect reporting errors previously mentioned. Without those errors, the sector's off-site recycling would show an increase of 27.1% and the sector's on-site recycling would show a *decrease* of 14.0%.

The sector's reporting of on-site energy recovery increased from 76,000 pounds in 1991 to 3.4 million pounds in 1996, which amounted to a percentage increase of more than 4,300%.

Figure 16-13 illustrates the percentage changes from 1991 to 1996 in the sector's reporting of total production-related waste by waste management type.

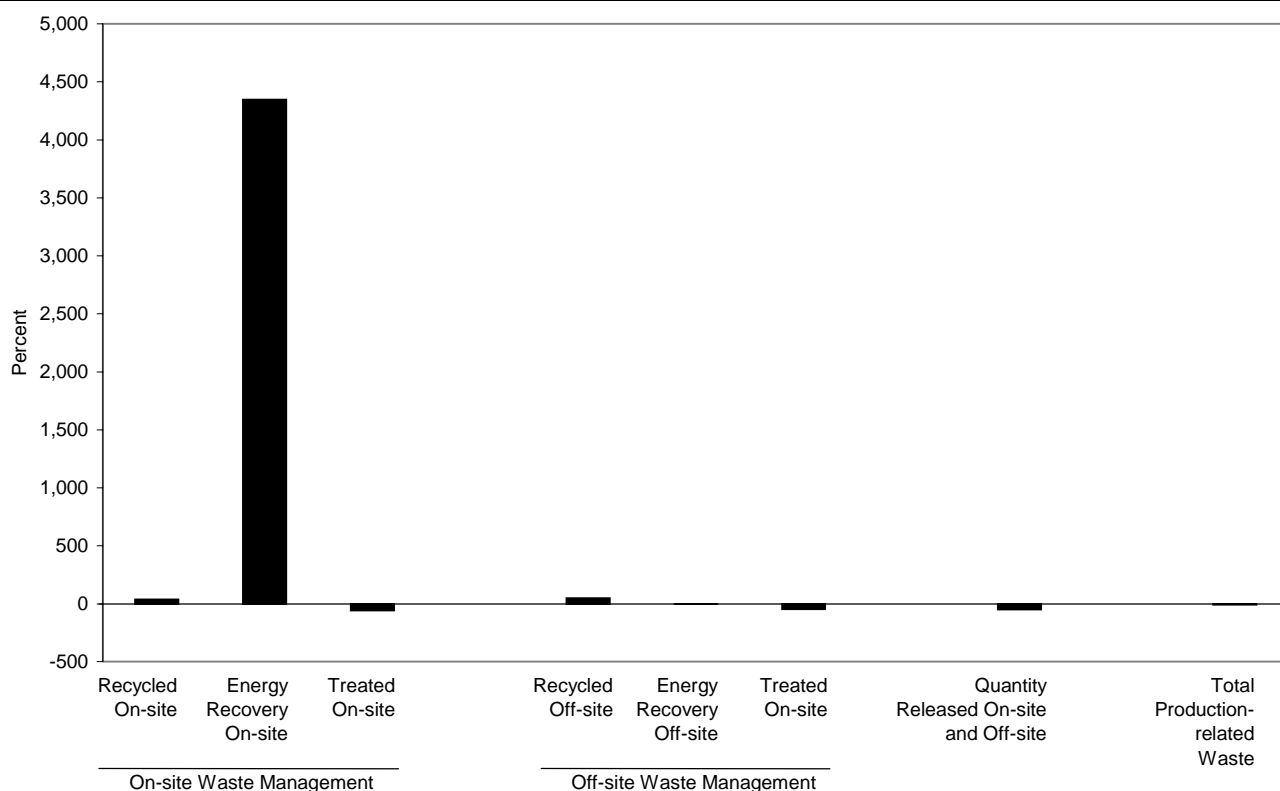
### Facilities with Large Increases and Decreases in Waste Management, 1991-1996

YKK USA in Macon, Georgia (SIC codes 3964 and 3965 in 1991 and 3965 in 1996), ranked first in increases of waste managed with 1.9 million pounds. The zipper manufacturer reported a 1.6 million-pound increase in on-site recycling of copper between the comparison years. No information was provided on the reason for the increase before this publication's deadline.

Coatings Incorporated & Company in Bayamon, Puerto Rico (SIC code 3999), was second with an overall 1.23 million-pound increase. Toluene reporting accounted for 100% of the increase. The facility could not be reached for comment. See also "Facilities with Large Increases and Decreases in Releases, 1988-1996."

Batesville Casket Company in Batesville, Indiana (SIC code 3995), was the third-ranked increaser in waste managed with 1.21 million pounds. This plant stamps metal components used in casket production. A reported increase in off-site recycling of copper was responsible for 61% of the overall increase. According to the facility contact, the increase is largely due to a change in the

**Note [Continued From Table 16-17]:** The incorrectly reported amounts were as follows: 3,209,200 pounds of recycling on-site, 3,209,773 pounds of other on-site waste management and 3,417,119 pounds of total production-related waste. Another facility incorrectly reported under SIC code 39 for 1994, 1995 and 1996. The correct SIC code is 37. The incorrectly reported amounts for 1994 were as follows: 3,496,860 pounds of recycling on-site, 3,496,860 pounds of total on-site waste management, 2,591,830 pounds of recycling off-site and 6,102,905 pounds of total production-related waste. The incorrectly reported amounts for 1995 were as follows: 3,270,607 pounds of recycling on-site, 3,270,607 pounds of total on-site waste management, 2,602,830 of recycling off-site, and 5,890,387 pounds of total production-related waste. The incorrectly reported amounts for 1996 were as follows: 2,867,591 pounds of recycling on-site, 2,867,591 pounds of total on-site waste management, 2,490,479 pounds of recycling off-site and 5,376,558 pounds of total production-related waste. Accounting for these two facility errors, the percentage change of recycling on-site for 1994 to 1995 changes from -19.3% to -22.7%, for 1995 to 1996 changes from 20.3% to 0.6% and for 1991 to 1996 changes from 37.3% to -14.0%. The percentage change of total on-site waste management for 1994 to 1995 changes from -8.8% to 9.2%, for 1995 to 1996 changes from 12.7% to 0.6%, and for 1991 to 1996 changes from 7.0% to -20.1%. The percentage change of recycling off-site for 1994 to 1995 changes from -13.7% to -15.9%, for 1995 to 1996 changes from 11.9% to 15.0% and for 1991 to 1996 changes from 47.0% to 27.1%. The percentage change of total off-site waste management for 1994 to 1995 changes from -11.2% to -12.7%, for 1995 to 1996 changes from 5.8% to 7.3%, and for 1991 to 1996 changes from 30.7% to 15.8%. The percentage change of total production-related waste for 1994 to 1995 changes from -10.9% to -6.4%, for 1995 to 1996 changes from 0.7% to -10.4%, and for 1991 to 1996 changes from -6.3% to -21.1%.



**Figure 16-13. Percentage Change in Quantities of TRI Chemicals in Waste, 1991-1996: Miscellaneous Manufacturing (SIC Code 39)**

**Note:** Does not include delisted chemicals, chemicals added in 1994 and 1995, ammonia, hydrochloric acid, and sulfuric acid. Data from Section 8 of Form R (Current Year, Column B) of year indicated. One facility reported incorrectly under SIC code 39 for 1996. The correct SIC code is 34. The incorrectly reported amounts were as follows: 3,209,200 pounds of recycling on-site and 3,417,119 pounds of total production-related waste. Another facility incorrectly reported under SIC code 39 for 1996. The correct SIC code is 37. The incorrectly reported amounts were as follows: 2,867,591 pounds of recycling on-site, 2,490,479 pounds of recycling off-site and 5,376,558 pounds of total production-related waste. Accounting for these two facility errors, the percentage change of recycling on-site for 1991 to 1996 changes from 37.3% to -14.0%. The percentage change of recycling off-site for 1991 to 1996 changes from 47.0% to 27.1%. The percentage change of total production-related waste for 1991 to 1996 changes from -6.3% to -21.1%.

interpretation of how to calculate off-site recycling data.<sup>1</sup>

Congoleum Corporation in Marcus Hook, Pennsylvania (SIC code 3996), was the top decriaser with an overall 8.6 million-pound decrease. Methyl ethyl ketone (MEK), used as a solvent in a printing operation, was responsible for

100% of the reduction. Solvent-based printing was discontinued and substituted with water-based inks. The facility contact stated that a small amount of MEK is still used to clean presses. See also "Facilities with Large Increases and Decreases in Releases, 1988-1996."

Armstrong World Industries, Inc., in Lancaster, Pennsylvania (SIC code 3996), ranked second in decreases with 3.0 million pounds. Also ranked as a major decriaser in releases (see "Facilities with Large Increases and Decreases in Releases, 1988-1996"), this facility uses toluene as a solvent in a coating process. The process involves coating non-wax vinyl flooring with polyurethane. Toluene,

<sup>1</sup> There are no TRI regulatory definitions of recycling. Facilities may use their own interpretations for purposes of reporting to TRI. Changes in these interpretations do not represent a change in guidance by EPA on how to report recycling.



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which was responsible for 40% of the overall reduction in waste management reporting, was primarily reported in on-site recycling. The decrease is the result of a process change, according to the facility contact.

Yamaha Musical Products, Inc., in Grand Rapids, Michigan (SIC code 3931), was third with a 1.4 million-pound decrease. This facility is the site of brass and woodwind musical instrument production. Elimination of trichloroethylene as a degreasing agent resulted in 100% of this facility's reduction. An aqueous cleaning system replaced the solvent degreasing operation.

### **Facilities Contacted for Explanations (alphabetical by facility):**

Armstrong World Industries, Inc., Lancaster, Pennsylvania: Jack B. Headley, September 21, 1998 (explanation provided)

Batesville Casket Company, Batesville, Indiana: Todd Bigelow, October 19, 1998 (explanation provided)

Batesville Casket Company, Batesville, Mississippi: Clyde Callihan, September 18, 1998 (explanation provided)

Coatings Incorporated & Company, Bayamon, Puerto Rico (could not be reached for comment)

Congoleum Corporation, Marcus Hook, Pennsylvania: Robert G. Rucker, October 16, 1998 (explanation provided)

Glacier Vandervell, Inc., Caldwell, Ohio: John Hirschfield and Rex Green, September 22, 1998 (explanation provided)

Kurz-Hastings, Inc., Philadelphia, Pennsylvania: Robert L. Wallace, October 19, 1998 (explanation provided)

NER Data Products, Inc., Des Moines, Iowa (could not be reached for comment)

Norgren Co., Littleton, Colorado: Stacy Guillaume, September 22, 1998 (explanation provided)

Pre Con, Inc., Petersburg, Virginia: Jack Wright and Brian Arvidson, October 16 and 20, 1998 (explanation provided)

Yamaha Musical Products, Inc., Grand Rapids, Michigan: James A. Blue, September 24, 1998 (explanation provided)

YKK USA, Macon, Georgia: Jeff Turner, October 19 and 23, 1998 (no explanation provided)



